HUMBOLDT-TOIYABE NATIONAL FOREST
BRIDGPORT AND CARSON RANGER DISTRICTS

CALIFORNIA INTEGRATED WEED MANAGEMENT PROJECT

WILDLIFE SPECIALIST REPORT

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Humboldt-Toiyabe
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I. PURPOSE OF THIS REPORT

The purpose of this report is to identify potential impacts from activities described under the Proposed Action Alternative and No Action Alternative for the California Integrated Weed Management Project (CIWMP). Species analyzed in this report include Toiyabe National Forest Management Indicator Species, Migratory Bird Species, and other species of interest. Federally listed and proposed species for listing were analyzed in detail under a Biological Assessment (BA) and Region 4 Sensitive Wildlife Species were analyzed in detail under the Biological Evaluation (BE). Both documents are summarized in this report.

II. PURPOSE AND NEED OF THE PROJECT

The purpose of this project is to implement an integrated approach to prevent, eradicate and/ or control infestations of invasive plants on the Humboldt-Toiyabe National Forest that occur in California, using prevention, manual, biological, chemical, mechanical and prescribed burn control measures. The purpose is also to establish criteria, under which an Early Detection Rapid Response (EDRR) approach would be implemented, thereby allowing for rapid treatment of newly discovered target invasive plants.

There is a need to take an aggressive approach in controlling and eradicating invasive species that occur on HTNF Lands within California. Invasive plants are spreading at an alarming rate in California, and fast encroaching onto National Forest System lands. Currently in California there are approximately 200 invasive plant species identified by the California Invasive Plant Council (Cal-IPC), about 127 of which Cal-IPC identifies as occurring in the Sierra Nevada region. Approximately 1,166 acres of non-native invasive plant species are currently mapped within California on HTNF lands. The majority of the known infested areas on the Carson and Bridgeport Ranger Districts occur primarily as scattered, individual populations that are less than one acre in size. Taking an aggressive approach in weed treatment will increase the potential for eradicating these small infestations and reduce the potential for future spread into neighboring areas.

Non-native invasive species have prolific seeding rates that quickly colonize in disturbed settings. Wildfire events, in particular, can pose the highest risk for weed spread with bare ground, high nutrient availability and a lack of competing plants. Displacement of native plant communities by invasive plants may result in a reduction in vegetative cover and species diversity that overtime, may reduce the quality of breeding and/or foraging habitat for wildlife.

The Humboldt-Toiyabe National Forest (HTNF) spans the entire state of Nevada and portions of California. In 2001 a programmatic Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) was completed to implement an Integrated Pest Management Program for the Toiyabe-Nevada portion of the Humboldt-Toiyabe National Forest. While this document provides a thorough strategy for controlling weeds on National Forest System (NFS) Lands in Nevada, NFS lands in California were not included in the analysis. There is a need to take an aggressive approach in controlling and eradicating invasive species that occur on HTNF Lands within California. Invasive plants are spreading at an alarming rate in California, and fast encroaching onto National Forest System lands. Currently in California there are approximately 200 invasive plant species identified by the California Invasive Plant Council (Cal-IPC), about 127 of which Cal-IPC identifies as occurring in the Sierra Nevada region. Approximately 1,166 acres of non-native invasive plant species are currently mapped within California on HTNF lands (Table 2). The majority of the known infested areas on the Carson and Bridgeport Ranger Districts occur primarily as scattered, individual populations that are between one and

five acres in size. This is also true for infestations in occupied and critical habitat for threatened, endangered, and proposed species that occur in the project area (Table 3). Taking an aggressive approach in weed treatment will increase the potential for eradicating these small infestations and reduce the potential for future spread and continued loss of habitat. The terms "Invasive Species" and "Noxious Weeds" are used interchangeably throughout this document to describe terrestrial, non-native plant species that pose a threat to native plant communities. More specifically:

Invasive plants are defined in Executive Order 13112 as "non-native plants whose introduction does or is likely to cause economic or environmental harm or harm to human health." Invasive plants compromise the ability to manage public lands for a healthy native ecosystem. Invasive plants can create a host of environmental effects that can be harmful to native ecosystem processes, including: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; increased potential for soil erosion and reduced water quality; alteration of physical and biological properties of soil; loss of long- term riparian area function; loss of habitat for culturally important plants; high economic cost of controlling noxious and invasive weeds; and increased cost of keeping recreational sites free of noxious and invasive weed species.

"Noxious" is a legal term, used by regulatory agencies, such as the California Department of Food and Agriculture (CDFA) and the U. S. Department of Agriculture Animal Plant Health Inspection Service (USDA-APHIS) to describe plants considered to be a threat to agriculture and/or non-crop areas. To be considered noxious, a plant has to be listed on a noxious weed list maintained by one or both of these agencies. In California, CDFA has started to also list invasive plants based on their threat or impact to wildlands. The Nevada Department of Agriculture also maintains a list of noxious and invasive species. Because the project area abuts Nevada state lands and in many areas shares identical ecological niches, the HTNF also refers to the Nevada state list when developing treatment priorities and goals (see Table 3).Both California and Nevada classify invasive and noxious weeds as a method of prioritizing their control and publishes lists by classification (Class A through C). The HTNF incorporates this list as they apply to National Forest System lands.

- Class A weeds are typically given the highest priority for treatment. These weeds either currently do not occur in the state or occur in such low numbers that eradication is considered possible. Prevention and eradication are the treatment goals for Class A weeds.
- Class B weeds are invasive weeds with populations of varying distribution and densities within the state. The level of mandated control is based on local conditions. These weeds may require eradication within certain areas of the state. Eradication and control are the treatment goals for Class B weeds.
- Class C weeds are widespread and common within the state. Control is generally the treatment goal for Class C weeds.

III. PROJECT LOCATION

The project area is located across the Bridgeport and Carson Ranger Districts in Alpine, El Dorado, Lassen, Mono, Nevada, Placer, Plumas, Sierra, and Tuolumne counties, California (Figure 1). The integrated weed management plan would provide direction for treatment of noxious and invasive weed species across approximately 693,721 acres on the two ranger districts and located in California (Table 1). Figure one provide a vicinity map that illustrates the project area. Figures 2 - 4 show the current locations of invasive weed populations in the northern, central, southern parts of the project area.

Figure 1. California Integrated Weed Management Project Area-Humboldt-Toiyabe National Forest

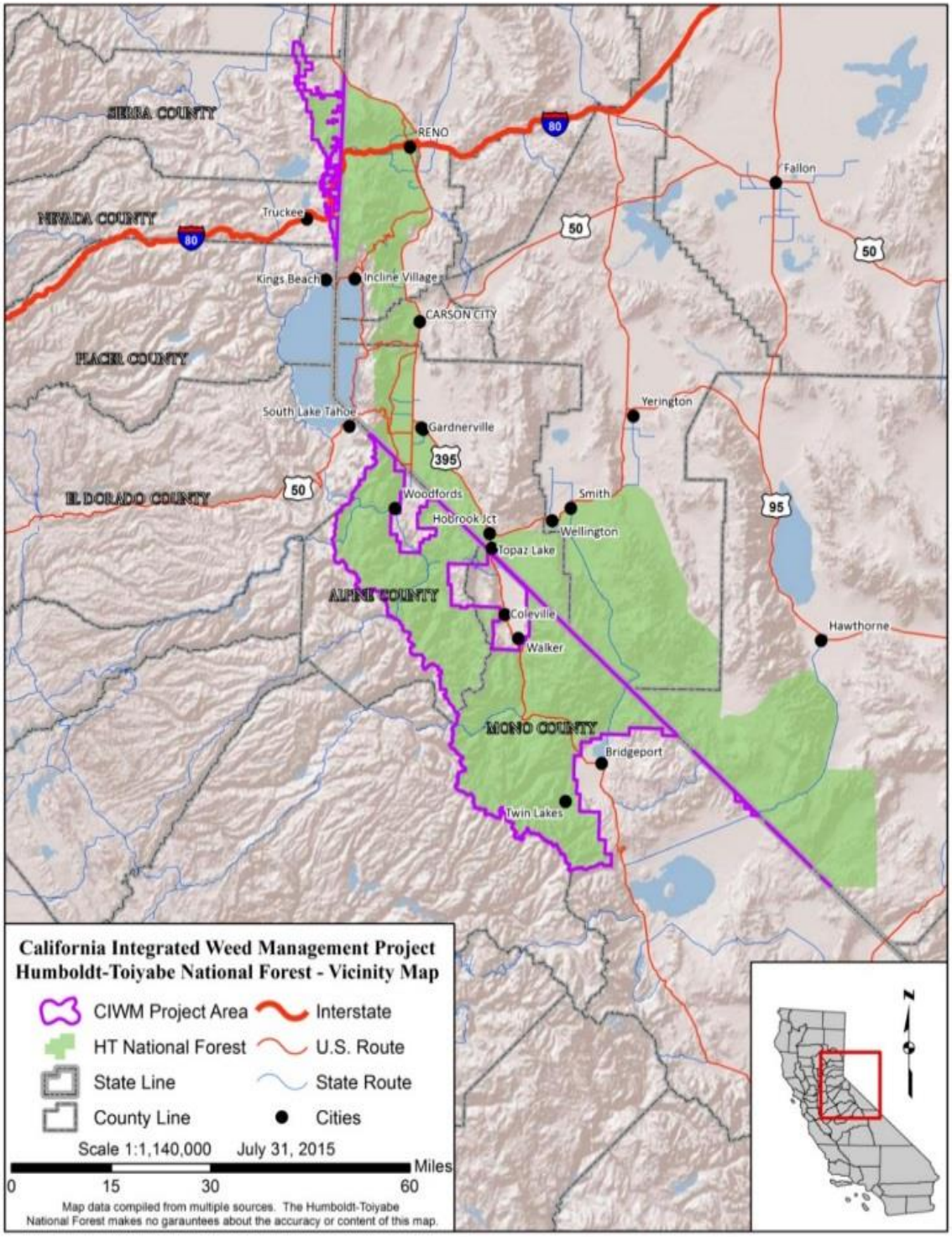


Figure 2. Current invasive weed populations in the northern portion of the project area

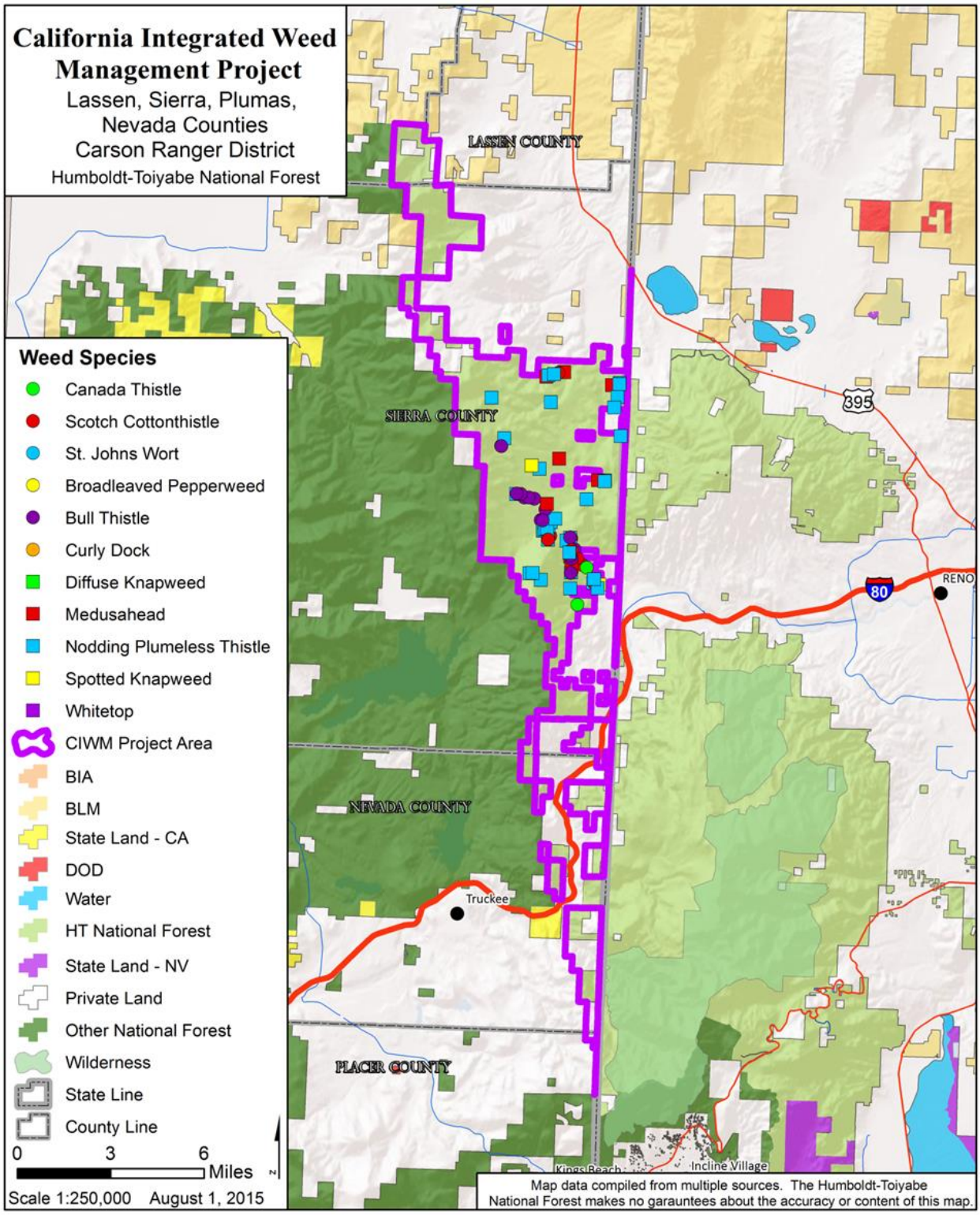


Figure 3. Current invasive weed populations in the central portion of the project area

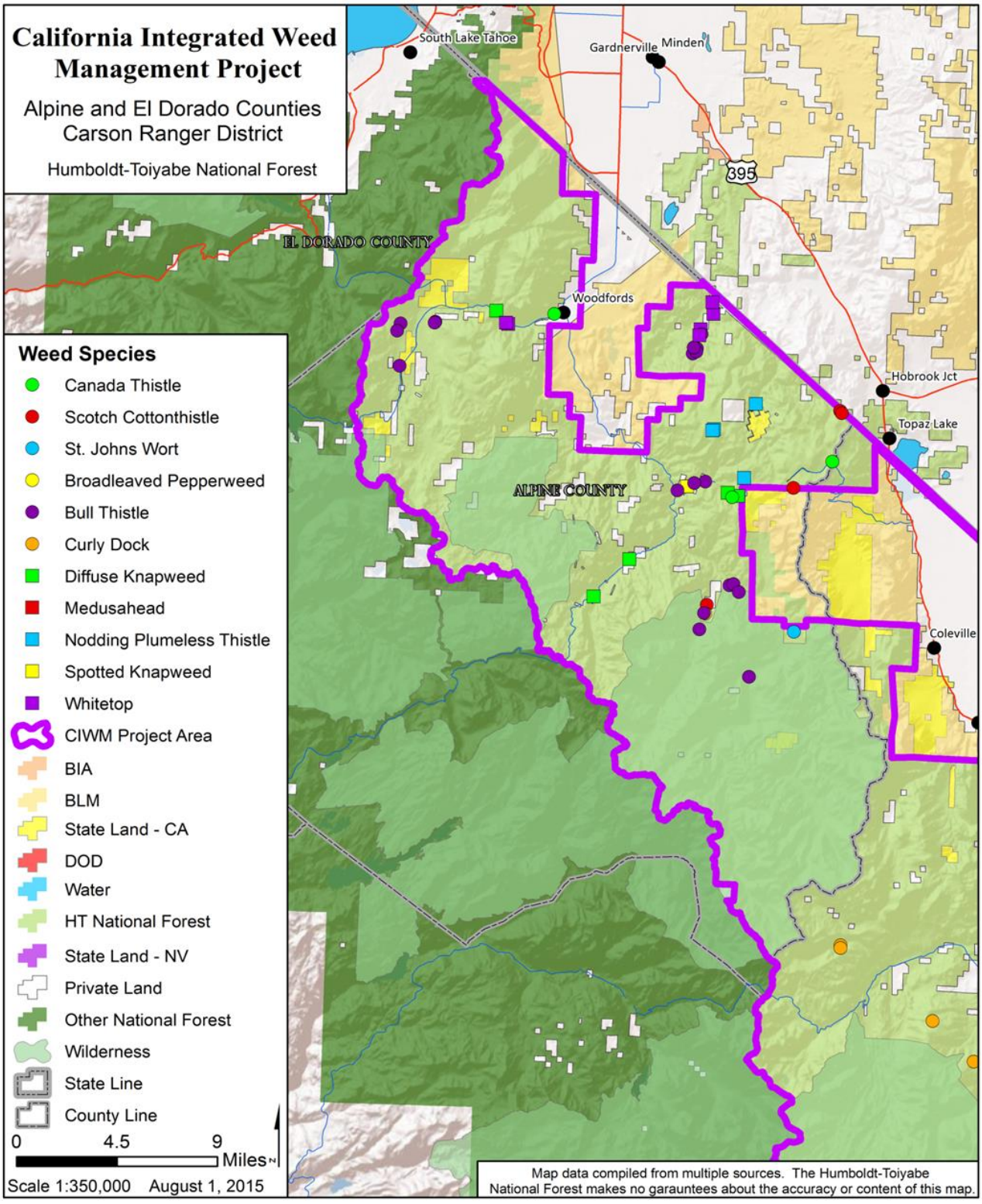
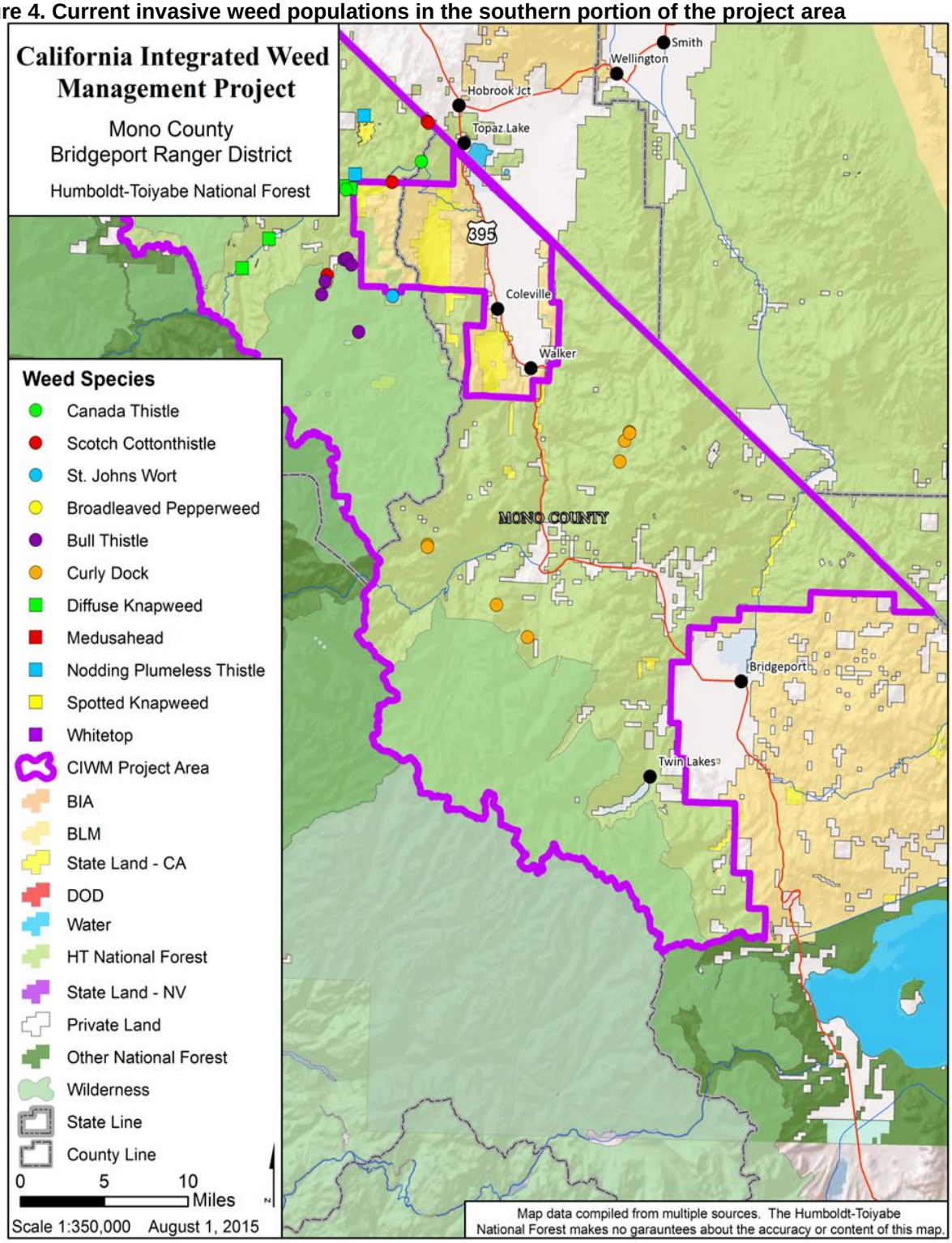


Figure 4. Current invasive weed populations in the southern portion of the project area



IV. MANAGEMENT DIRECTION

Forest-wide management direction is included in Appendix A of this report and was obtained from the Toiyabe Land Use and Forest Management Plan (USDA 1986), the 2001 Record of Decision (ROD) for the Sierra Nevada Forest Plan Amendment (Framework) as amended by the 2004 ROD for the Sierra Nevada Forest Plan Amendment (Framework) (USDA 2001, 2004), and the Greater Sage Grouse Bi State Sage Grouse Distinct Population Segment Forest Plan Amendment (USDA 2016). Direction includes only those standards and guidelines applicable to wildlife species that have the potential to occur in the analysis area (See Appendix A)

V. ALTERNATIVES ANALYZED

Alternative 1 – No Action

Under the No Action Alternative, prevention would be the only method used to control noxious weeds. Other treatment efforts, including hand pulling, biological controls, mechanical, or herbicides would not occur. While prevention measures can help slow the spread of invasive plants, prevention alone is insufficient to address the spread of existing infestations. Limited weed treatments (hand pulling/clipping and bagging, and prevention) would continue in areas where previously approved under existing NEPA decisions. Invasive plant treatments associated with existing NEPA decisions (Table 1) would continue to occur but new or additional efforts would not be implemented.

Table 1. Invasive Plant Treatments Associated with Existing NEPA Decisions

Project	Weed Species	Treatment Method	Date
Dog Valley Fuels Reduction and Ecosystem Enhancement	Musk thistle, spotted knapweed, cheatgrass, medusahead	*Hand pulling; clipping	2009 (ongoing)
Dog Valley Route Adjustment Project	Musk thistle, spotted knapweed, cheatgrass, medusahead	*Hand pulling; clipping	2009 (ongoing)
West Carson Route Adjustment Project	Perennial pepperweed, bull thistle	*Hand pulling; clipping	2013 (ongoing)
Markleevillage Fuels Reduction Project	Bull thistle, cheatgrass	*Hand pulling; clipping	2010(ongoing)
East Alpine Rangeland Project	Bull thistle, Canada thistle cheatgrass	*Hand pulling; clipping	2012(ongoing)
East Carson River Restoration	Bull thistle, cheatgrass	*Hand pulling; clipping	2011(ongoing)
Wheeler Creek Habitat Restoration Project	No weeds present but monitoring	*Hand pulling; clipping	2014
Bridgeport Travel Management	Hoary cress, bull thistle, Canada thistle, cheatgrass	*Hand pulling; clipping	2011

* Because hand pulling is not always effective or feasible for some species that occur in large scattered populations (such as medusahead and cheatgrass) or for long tap-rooted perennial species (perennial pepperweed, Canada thistle); many of the infestations have the potential to increase.

Alternative 2 – Proposed Action

The Proposed Action includes annually treating a portion of the invasive plant infestations that occur in California on the Humboldt-Toiyabe National Forest. The number of infestations and acres treated each year will depend upon available funding. Treatments would involve an integrated approach that in some circumstances involve the use of a combination of methods including manual (hand pulling), biological controls, herbicides, mechanical and prescribed burning methods over several years. The proposed action would include treating existing populations as well as any future infestations that might occur.

A. Implementing Treatment Strategies

Based in part on the California and Nevada State classification systems discussed in Section II, for each known invasive plant infestation, and for future infestations that may be discovered, one of three treatment strategies is proposed:

- Annually treat and monitor the infestation with the goal of eradication.
    - Infestations of species documented as highly invasive with severe or substantial ecological impacts in California and those that are currently limited in their distribution and abundance on the Forest making their eradication an achievable goal.
- Treat and monitor a portion of the identified occurrences each year, focusing on reducing the area coverage and amount over time (eradicate/control).
    - Under this strategy, invasive plant species would be annually treated, focusing first on eradicating and then containing the most isolated, outlying occurrences and, over time, reducing the footprint of larger, less isolated occurrences. Treatments will also be designed to contain infestations along transit routes in order to prevent these invasive plants from moving into natural forest settings. Where appropriate, restoration and reclamation activities would be designed to lower spread potential.
- Treat only leading edge infestations or where concurrent with higher priority species (control)
    - Under this strategy targeted efforts to control, contain or eradicate certain species would be a lower priority for one or more of the following reasons: 1) the species is less invasive and unlikely to create large monocultures on NFS lands; 2) the species cannot be feasibly addressed with available treatments at the Forest- wide scale; or 3) the species is not causing significant ecological impacts.

Criteria for prioritizing treatment sites, given limited funding, will follow the following guidelines:

- Infestations with a high potential for future spread (prolific species found in high traffic areas such as administrative sites, trailheads, major access points for the forest, and systems vulnerable to invasion (recent fires)
- High value areas (such as TEP habitat; Wilderness, etc) and portals to these areas
- Early invaders with small isolated infestations on the forest.
- Leading edge and satellite occurrences of larger more established infestations
- Treating the perimeter of larger infestations

Using the above criteria, in addition to other site specific information, the HTNF will focus on 13 non-native invasive species (Table 2) for treatment and monitoring. Of the 13 species listed below, 10 are included on both the California and Nevada State Noxious Weed lists. Where the classification goal differs between the States (prevention, control, eradicate); site specific information and local knowledge

of infestations was used to determine a treatment goal. For reference the classification system is provided again below:

- Class A weeds are typically given the highest priority for treatment. These weeds either currently do not occur in the state or occur in such low numbers that eradication is considered possible. Prevention and eradication are the treatment goals for Class A weeds.
- Class B weeds are invasive weeds with populations of varying distribution and densities within the state. The level of mandated control is based on local conditions. These weeds may require eradication within certain areas of the state. Eradication and control are the treatment goals for Class B weeds.
- Class C weeds are widespread and common within the state. Control is generally the treatment goal for Class C weeds.

Table 2. Priority weed species for treatment and associated treatment goal. [1] Curly dock is not on the CA or NV Noxious Weed List; however it has been documented in habitat for threatened and endangered species within the project area.

Weed Species	Mapped acres on HTNF Lands in CIWMP area	Number of Individual Locations	CA State Weed List Category	NV State Weed List Category	Treatment Goal	Species Description
Russian Knapweed (*Acroptilon repens*)	0	0	B	B	Prevention	Perennial weed that has a creeping root system. It reproduces by roots and seed. Manual treatments (hand pulling) effective for small populations; pre-emergent (fall) herbicide applications for larger more established populations
Diffuse Knapweed (*Centaurea diffusa*)	2	12	A	B	Control/ Eradicate	Tap-rooted biennial, occasionally annual or short-lived perennial forb that reproduces by seed. Can be hand pulled in spring before flowering; spring herbicide application for larger populations; mowing ineffective
Spotted knapweed (*Centaurea maculosa*)	5	4	A	A	Control/ Eradicate	Short lived perennial that reproduces solely by seed. Same treatment as diffuse knapweed
Musk Thistle (nodding plumeless thistle) (*Carduus nutans*)	462	57	A	B	Control	Biennial weed that has a deep, fleshy taproot and reproduces by seed. Herbicide application during reproductive period most effective treatment method; Insect Bio-control
Scotch Thistle (*Onopordum acanthium*)	12	21	A	B	Control	Biennial weed that reproduces by seed. Can form dense stands that are difficult to penetrate. Herbicide application of rosettes in fall most effective
Bull Thistle (*Cirsium vulgare*)	234	62	N/A	N/A	Control	Short-rooted biennial weed that reproduces by seed; hand pulling very effective; herbicide application of rosettes in fall or spring also effective; insect bio-controls effective.
Canada Thistle (*Cirsium arvense*)	8	19	B	C	Control	Perennial weed that has a deep, extensive creeping root system. Repeated mowing followed by herbicide most effective; several effective insect bio-controls

Weed Species	Mapped acres on HTNF Lands in CIWMP area	Number of Individual Locations	CA State Weed List Category	NV State Weed List Category	Treatment Goal	Species Description
Yellow-Star Thistle (*Centaurea solstitialis*)	4	3	C	A	Control/ Eradicate	Annual weed that reproduces by seed and can have a long tap root. Mowing and hand pulling effective if at right time; targeted grazing and insect bio-controls can be very effective
Perennial Pepperweed (broad-leaf pepperweed) (*Lepidium latifolium*)	12	5	B	C	Control	Perennial weed that has a creeping root system and can be found in moist areas and pastures. Hand pull for small infestations (a few plants); targeted grazing followed by herbicide application;
Hoary Cress (whitetop) (*Cardaria draba*)	204	19	B	C	Control	Perennial weed that reproduces through roots and seed. Hand pull small infestations; mowing and herbicide
Medusahead (*Taeniatherum caput-medusae*)	223	13	C	B	Control	Annual invasive grass that reproduces by seed. Mowing, prescribed fire, herbicides can all be effective treatment
Cheatgrass (*Bromus tectorum*)	unknown	unknown	N/A	N/A	Control	See medusahead; targeted grazing also effective
Curly dock(*Rumex crispus)* [1]	unknown	unknown	N/A	N/A	Control	Perennial prolific seed producer; occurs in drainages and wetter portions of pastures; hand pulling/digging or herbicide treatments

B. Additional Details Of The Proposed Action

PREVENTION

A major component of the CIWMP will include incorporating measures into project planning and project implementation that prevent, or greatly reduce the potential for weeds to become established. To prevent the spread of noxious and invasive weeds, the following preventive measures will be incorporated into the CIWMP:

- **Noxious Weed Risk Assessment** –Forest Service Manual 2081.02 requires a noxious weed assessment be conducted when any ground disturbing action or activity is proposed to determine the risk of introducing or spreading noxious weeds associated with the proposed action. For projects having moderate to high risk of introducing or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during and/or before project implementation. The Risk Assessment includes information on current condition of the project area, potential risk of increased spread and design features to minimize potential for new infestations. The Assessment also determines if weed treatments need to occur prior to commencement of project activities.

- **Best Management Practices** (BMPs)-incorporate BMPS for weed prevention into all project planning efforts which include a ground disturbing component. BMPS include (but not limited to):

- Require all construction vehicles to be inspected for weeds prior to entering work site
- Set up weed wash stations and clean all equipment before leaving the project site if operating in areas infested with weeds.
- All sand, gravel, borrow, and fill material will be inspected and certified weed free
- Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely;
- To the extent feasible, design project areas to avoid known noxious weed infestations; if unavoidable then assess if pretreatment needs to be conducted prior to construction activities
- Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes;
- Incorporate a post monitoring and treatment plan into all ground disturbing project planning efforts. Monitoring should continue for a minimum of five years after the project is completed to assure an Early Detection Rapid Response (EDRR) to new infestations.

Revegetation/Restoration (following Forest Service project activities)-

Revegetation will involve site preparation, such as raking to prepare a seed bed to promote seed germination, planting of seeds and/or propagules (depending on the species, this is done either in early spring or late fall to take advantage of available moisture), vigilant treatment of invasive plants as they germinate from the existing seedbank, and monitoring the results. In some cases, a follow-up seeding/planting may need to be done.

Revegetation with carefully selected plant materials is a critical component of integrated weed management strategies. Commonly used control tactics, such as manual or chemical treatments, in effect create a disturbance on the current vegetation community. These control tactics may eliminate or suppress target invasive species in the short term, but the resulting gaps in vegetation and bare soil create open niches susceptible to secondary invasion by the same or other undesirable plant species. The spot method can leave sites open to secondary invasion since larger areas of vegetation are eliminated.

Spot spray areas would be reviewed and determination made about the need for active restoration. Areas with bare soil created by the treatment of invasive plants would be evaluated for restoration needs by a botanist and soil scientist. Revegetation would occur where needed to meet resource goals, including desired conditions for ground cover and native plant composition.

Determining the need for active restoration/revegetation versus passive restoration (allowing plants on site to fill in a treated area) is the first step when addressing this need. Passive restoration depends on re-colonization from the existing seedbank and from plant propagules dispersed from surrounding sources, as well as native species from within the invasive plant site. Passive restoration may be appropriate where treated sites leave relatively little bare ground or along less-disturbed roadsides where adjacent native vegetation can provide adequate seed source to recolonize treated areas.

Active revegetation is a long-term commitment that would be focused on areas that are either ecologically unique, or where active revegetation is necessary to provide competition for highly aggressive invasive plant species. In some cases, active restoration is not the preferred choice due to

the nature of the site. Examples include continually disturbed areas, such as road shoulders that are frequently maintained, active landings, and river banks that are prone to annual scouring.

Old roadbeds, mining sites, are examples of sites that are unproductive but need stabilization. Revegetation may be difficult since these sites are not yet ready to support desired native vegetation. Applying groundcover with mulch stabilizes the site against erosion, while creating a weed barrier. For these extreme cases, the initial site stabilization methods are the first stage for future revegetation efforts. The following best management practices would be applied during any restoration efforts:

- Include weed prevention measures, including project inspection and documentation during project operations;
- Retain bonds until reclamation requirements, including weed treatments, are completed, based on inspection and documentation;
- To prevent conditions favoring weed establishment, re-establish vegetation on bare ground caused by project disturbance as soon as possible using either natural recovery or artificial techniques;
- Maintain stockpiled, weed-free material in a weed-free condition;
- Revegetate disturbed soil in a manner that optimizes plant establishment for each specific project site. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary.
- Inspect seed and straw mulch to be used for site rehabilitation (for wattles, straw bales, dams, etc.) and certify that they are free of weed seed and propagules;
- Inspect and document all limited term ground-disturbing operations in weed infested areas for at least three growing seasons following completion of the project;
- Use native material where appropriate and feasible. Use certified weed-free or weed- seed-free hay or straw where certified materials are required and/or are reasonably available;
- Provide briefings that identify operational practices to reduce weed spread (for example, avoiding known weed infestation areas when locating fire lines);
- Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established.

INVENTORY

Information on the presence, location and distribution of noxious and invasive weeds is a key first step to all subsequent management efforts. Once located, noxious and invasive weeds would be mapped in GIS and recorded in the Forest Service FACTS database. Mapping provides information about the extent of the infestation, transport vectors, and the effectiveness of the control methods. Over the long-term, mapping can provide historical data for the epicenter of an infestation, rate and direction of spread.

CONTROL/ERADICATION

Manual Methods

Manual treatment involves the use of hand tools to cut, clear, or prune herbaceous and woody species. Treatments include cutting noxious and invasive weeds above the ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; cutting at the ground

level or removing competing plants around desired species; or placing mulch around desired vegetation to limit competitive growth.

- **Hand Pulling:** Pulling or uprooting plants can be effective against some shrubs, tree saplings, and herbaceous invasive plants. Annuals and tap-rooted plants are particularly susceptible to control by hand-pulling. It is not as effective against many perennial invasive plants with deep underground stems and roots that are often left behind to re-sprout. The advantages of pulling include its small ecological impact, minimal damage to neighboring plants, and low (or no) cost for equipment or supplies.
- **Pulling Using Tools:** Most plant-pulling tools are designed to grip the plant stem and provide the leverage necessary to pull its roots out.
- **Clipping:** "Clipping" means to cut or remove seed heads and/or fruiting bodies to prevent germination. This method is labor-intensive and effective for small and spotty infestations.
- **Mulching:** Covering with certified "weed free and plastic free" mulch such as rice straw, grass clippings, wood chips, newspaper. Requires regular maintenance to assure mulch is maintained in targeted area.
- **Tarping:** Placing tarps to shade out weeds or solarize them (to injure by long exposure to heat of the sun). Requires regular maintenance to assure tarps are secure, intact and achieving desired results.

Mechanical Methods

- **Mowing-** Mowing is a suppression measure that can prevent or decrease seed head production. To be effective in treating invasive species such as annual grasses (cheatgrass), mowing needs to occur every two to three weeks until flowering is completed. Mowed weeds will re-grow and set seed from a reduced height so a combined control method is generally necessary to be effective. Mowing would be conducted using a small (700 lb) Bobcat ®-loader equipped with a mower attachment. Because mowing requires repeated treatments in the same year, can only be used on relatively flat (slopes less than 20%) and non-rocky terrain, this method will only be used in rare circumstances to treat small (less than 20 acres) infestations of invasive grasses. Mowing of invasive grasses over a small area produce minimal biomass and will not suppress native plant regeneration.
- **Cutting with a Hand-held String or Blade Trimmer:** Mowing or cutting with handheld gas or battery powered string or blade trimmer. Treatment method is essentially the same as described above for the Bobcat ® mower but would generally be used to treat much smaller areas (less than one acre). Again this treatment would be rarely used as it requires multiple cuttings to be effective and follow up treatments with other controls such as herbicide or biological controls.

Biological Controls

- Biological control involves using living organisms, such as insects or grazing animals to suppress weed infestations. This treatment method is generally most appropriate in situations where weed

infestations are large and well established, and on sites where other control methods are not feasible. Biocontrol methods generally suppress host weed populations, but may not eradicate them.

- **Insects**-Biological control using insects is used to reduce a targeted weed population to an acceptable level by stressing target plants and reducing competition with the desired plant species. Insect agents are generally used for large expansive monocultures of noxious and invasive species. Insect agents including plant eating insects, nematodes, flies, mites and, pathogens typically require 3-5 years for establishment and can limit the spread and density of target weed species by feeding on leaves, stems, roots and/or seed heads. Insects can affect plants directly by destroying vital plant tissues and functions, and indirectly, by increasing stress on the plant, which may reduce its ability to compete with other plants. Often, several biological control agents are used together to reduce noxious and invasive weeds density to an acceptable level.

  Only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018).

  Targeted Grazing-. In targeted grazing, the kind of animals and amount and duration of grazing are specifically designed to help control a particular species of plant while minimizing the impacts on perennial native vegetation that is needed to help reduce the likelihood of reinvasion by undesirable plant species. Targeted grazing includes the use of goats, sheep, or other livestock that have been specifically 'trained' by their operators to eat certain plant species. Generally the operator also uses a portable fencing system to help 'target' the animals on focal species. Grazing animals, either alone or in combination with other treatment methods, can be highly effective in reducing weed populations through the use of targeted grazing prescriptions. Domestic animals, such as cattle, sheep, or goats, control the top-growth of certain noxious and invasive weeds which can help to weaken the plants and reduce the reproduction potential. The animals benefit by using the weeds as a food source and, after a brief adjustment period, can consume 50 percent or more of their daily diet of the weed, depending on the animal species. Although some Forest Service livestock grazing permits include authorizing cattle to graze invasive species such as cheatgrass, under the California Integrated Weed Management Project, livestock are only used under specific "targeted grazing" conditions.

Other Treatment Methods

Prescribed Burning- Prescribed burning would only be used in very limited situations where burning could help achieve management objectives. Prescribed burning is often used to control large expansive monocultures of cheatgrass and medusahead infestations. To be successful, burning would be conducted under very precise environmental conditions with intense management and oversite. A site specific burn plan and close consultation and coordination with a fuels specialist, would be completed before any prescribed burning activities occurred. Prescribed burning almost always needs to be conducted with other weed treatments to remove vegetation other treatments (e.g. herbicide, seeding etc). Prescribed

burning will not be conducted in any occupied or critical habitat for threatened, endangered or proposed species.

Herbicide Methods

Chemical treatment involves the application of herbicides (chemical compounds), via a variety of application methods, at certain plant growth stages to kill noxious and invasive weed species. Depending on the type of herbicide selected, they can be used for noxious and invasive weed control or complete eradication and may be used in combination with other control treatments. Selection of an herbicide for site-specific application would depend on its chemical effectiveness on a particular noxious or invasive weed species, habitat types present, proximity to water, and presence or absence of sensitive plant, wildlife, and fish species. Herbicides are most effective on pure stands of a single noxious or invasive weed plant where desirable and non-target plants are scarce or absent.

Chemicals can be used alone or in tank mixtures. Tank mixtures are only used if existing recommendations are available from State Department of Agriculture or other official resources such as Universities and or County cooperative extensions. If two or more different chemicals of the formulations are approved as a tank mixture on one or more of the labels, or have written recommendations for a tank mixture from the State Department of Agriculture, then it is permissible to tank mix these chemicals for a spray program. In addition to herbicides, a blue dye is added to tank mixtures to assist with monitoring the extent of the treatment coverage. The dye helps to reduce the chance of under and over application and would help detect and manage drift. Use of dye also reduces the risk to non-target species as a result of over application of herbicide and assures treatment of target species. Dye is water soluble, breaks down in sunlight, and washes away easily with water.

Herbicides would be used to control and eliminate new areas of noxious and invasive weeds spread and to contain the spread of existing infestations. Depending on the level of infestation, the type of weed species (e.g. deep rooted perennial or biannual) and/or its proximity to sensitive areas (e.g. water) herbicides can be applied through a variety of methods as described below:

- **Directed Broadcast/Spot Spray/Foliar spray-** Accomplished by sprayer wand with regulated nozzle in such a fashion that spray is concentrated at the target species. This is typically accomplished using a backpack sprayer.
- **Broadcast Spray-** Broadcast application (using truck/UTV mounted sprayers) over wider areas would be used only when necessary to treat large infestations. In some instances, broadcast spraying may be the only effective way to treat very dense and extensive weed infestations. When using broadcast spray drift reduction measures will be used. This will include low spray pressure of 30PSI or less, spray nozzles with large orifices. Wind speeds of 8mph or less and no treatment if inversions are present. Drift cards will be used to help monitor spray applications.
- **Hand/Selective-** Treatment of individual plants to avoid spraying other desirable plants. There is a low likelihood of drift or delivery of herbicides away from treatment sites. This method is used in sensitive areas, such as near water, to avoid getting any herbicide on the soil or in the water. Hand/Selective methods could be done under more variable conditions than spot spraying or broadcast spraying. Specific methods include:

- Dip and clip – similar to cut stump, where cutting tool is first dipped in herbicide, then used to cut target species to be treated
- Cut stump – herbicide is sprayed on cut surfaces to eliminate or greatly reduce re-sprouts;
- Wicking and wiping – herbicide is wiped onto the target species using a wick applicator.

Proposed Herbicides

Seven herbicides are proposed for use in this project, using the application methods described above: ***aminopyralid, chlorsulfuron, glyphosate, imazapyr, triclopyr, rimsulfuron* and *sulfometuron-methyl.***

When appropriate, herbicides with different modes of action can be used to treat invasive plant species. Alternating herbicide types can help reduce the risk of populations developing herbicide tolerance from repeated application with the same herbicide.

Only herbicides that have been approved for use in the state of California and have a label certifying that the chemical has been approved for use by the Federal Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation (DPR), would be used. The EPA requires the manufacturers to conduct ecological risk assessments that include toxicity testing on representative species of birds, mammals, freshwater fish, aquatic invertebrates, and terrestrial and aquatic plants. An ecological risk assessment uses the data collected to evaluate the likelihood that adverse ecological effects may occur as a result of herbicide use.

The Forest Service also conducts its own risk assessments, focusing specifically on the type of herbicide uses in forestry applications. The Forest Service contracts with Syracuse Environmental Research Associates, Inc. (SERA) to conduct human health and ecological risk assessments for herbicides that may be proposed for use on NFS lands (SERA 2007). The SERA risk assessments represent the best science available, using peer- reviewed articles from the scientific literature and current U.S. EPA documents, such as Confidential Business Information, to estimate the risk of adverse effects to non-target organisms. The risk assessments consider worst-case scenarios including accidental exposures and application at maximum label rates. Once a risk assessment is completed, pesticide use proposals are submitted to the Forest Supervisor for approval. Only herbicides that have SERA risk assessments and approved Pesticide Use proposals are proposed in this action, with the exception of one chemical, rimsulfuron. Rimsulfuron is an effective herbicide in the treatment of annual grasses and is preferable over Sulfometuron-methyl due to its relative stability in soils and overall better environmental characteristics. The Forest Service is in the process of developing a Pesticide Use Proposal for rimsulfuron. Once a USFS Pesticide Use Proposal is completed, the HTNF will no longer use sulfometuron-methyl and will replace it with rimsulfuron for the treatment of annual grasses.

Label directions, as well as all laws and regulations governing the use of pesticides, as required by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and Forest Service policy pertaining to pesticide use, would be followed. Coordination with the appropriate County Agricultural Commissioners would occur, and all required licenses and permits would be obtained prior to any pesticide application. The label contains information about the product, including its relative toxicity, potential hazard to humans and the environment, directions for use, storage and disposal, and first aid treatment in case of exposure. Label directions provide for public and worker safety by requiring posting

of treated areas, pre-designation of mixing, storage and filling sites, and transportation and handling practices in accordance with toxicity of each formulation. Where herbicide treatments are proposed, the lowest effective label rates would be used. A site-specific safety and spill plan would be developed prior to herbicide applications.

The following is a short description of the proposed herbicides and their uses:

Aminopyralid-Aminopyralid is a pre- and post-emergent herbicide that can control a number of key invasive broadleaf species. Aminopyralid provides residual weed control activity, reducing the germination of target plants and the need for re-treatment. The herbicide has a lower effective application rate (compared to other registered herbicides) and a non-volatile formulation. Aminopyralid is labeled in California for use to the water's edge. For best results aminopyralid is generally applied to young weeds that are actively growing during time of application. It is proposed for use primarily on starthistles, knapweeds, and Canada thistle using directed foliar spray, broadcast spray or wicking. Broadcast spray would be limited to disturbed areas dominated by non-native species. A product example is **Milestone.**

Chlorsulfuron-Chlorsulfuron is a selective pre- and post-emergent herbicide used to control many broadleaf species. Chlorusulfuron would be used primarily as a post-emergent for use on tall whitetop, *(Lepidium latifolium)* and hoarycress (*Cardaria spp.*),using directed foliar spray or wiping. A product example is **Telar.**

Glyphosate- Glyphosate is a non-selective systemic herbicide that can control most annual and perennial plants. Glyphosate rapidly binds to soils, and is not readily absorbed by plants roots. Its non-selectiveness causes this herbicide to kill most plants where applied, including desirable native species. Plants can take several weeks to die and a repeat application in the same season is sometimes necessary to remove plants that were missed during the first application. Only formulations *without* a premixed surfactant are being proposed for use. The Forest Service proposes to use glyphosate only in limited situations within the project area, as more selective herbicides usually better meet the desire to treat only target species. Aquatic formulations of glyphosate can be used in aquatic settings and have minimal detrimental effects to aquatic species. Glyphosate will not be used in an area larger than one contiguous acre, and will likely almost always be used to treat much smaller areas. Product examples include **Accord, Rodeo** or **Aquamaster.**

Imazapyr-Imazapyr is a non-selective herbicide used for the control of a broad range of weeds including terrestrial annual and perennial grasses and broadleaved herbs, woody species, and riparian and emergent aquatic species. It can be applied pre-emergent, but is most effective when applied as a post-emergent herbicide. A product example is **Habitat**.

Triclopyr-Triclopyr is a selective post-emergent herbicide used to control woody and broadleaf plants. It is proposed for use primarily on woody species such as saltcedar (*Tamarix ramosissima*). Application for woody species would include cut stump, directed foliar spray or wiping. **Garlon 3A** is a product example.

Rimsulfuron- Rimsulfuron is an effective herbicide to control annual grasses such as cheatgrass and medusahead. It is absorbed through the plants leaves and translocated to the growing point of the plant. This product is designed to be used in dry areas and will not be used near any wet meadows, marshy

areas, or riparian areas. This herbicide can be applied as a pre or post-emergent. **Matrix** is a product example.

Sulfometuron-methyl- Sulfometuron-methyl is a selective herbicide and will be used for pre-emergent control of annual grasses such as medusahead or cheatgrass. In some cases a mix of Sulfometuron methyl and chlorsulfuron (Landmark) will be use. This product is designed to be used in dry areas and will not be used near any wet meadows, marshy areas, or riparian areas. **Oust** is a product example. As mentioned above, this chemical will eventually be replaced by Rimsulfuron and no longer used on the HTNF.

Surfactants

Herbicide treatments would include the use of a surfactant to enable herbicide penetration of the plant cuticle (a thick, waxy layer present on leaves and stems of most plants). Surfactants are materials that facilitate the activity of herbicides through emulsifying, wetting, spreading or otherwise modifying the properties of liquid chemicals. Treatments would also include use of a dye to assist the applicator in efficiently treating target plants and avoiding contact with plants that have already been treated. A methylated seed oil surfactant, such as Hasten or Competitor, would be used as a surfactant and a water soluble dye, such as Highlight Blue, would be used as a dye. Both the surfactant and the dye are considered to be virtually non-toxic to humans.

MONITORING

Post-treatment monitoring will occur on all treatment sites to determine if treatment methods were successful. Level of success determinations will be commensurate with the treatment goal of the site (i.e. eradicate, control etc.). For example, if the objective was eradication, post-treatment monitoring would focus on a visual inspection of the treatment area for the presence or absence of the noxious or invasive weed species. This treatment would be considered successful when the target species is absent from its former location. Treatments designed to contain, control or suppress would be based on quantitative inspection (i.e. a reduction in percent cover or size of infestation of the noxious or invasive weed). If monitoring demonstrates that a treatment has not been effective, corrective actions (such as retreatment with the same or different method, or combination of methods) would be identified and implemented to enhance the level of success.

ANNUAL IMPLEMENTATION PROCESS

The Annual Implementation Process will include a yearly pre-treatment assessment of current weed conditions and will provide an annual plan for how, when, and where weeds will be treated. This process will include the coordination between the Forest Service Resource specialists and the District noxious weed program manager. The team will review up to date weed maps and proposed treatment areas and provide feedback on appropriate design features, special notifications, or other issues that may be associated with treatments. The Implementation Process will also help to prioritize treatment areas based on updated inventory information, proximity to sensitive areas, and/or the EDRR to newly discovered weed populations.

DESIGN FEATURES

Soils/Watershed

Issue: The use of herbicide treatments may negatively affect soil conditions and or increase the risk of contaminating watersheds through drift and groundwater seepage.

1. Applicators will be briefed about the locations of water sources prior to beginning work and buffers will be flagged on the ground.
2. Within 50 feet of perennial rivers, streams, lake, wet meadows, and other water bodies, including seasonally flooded areas, the preferred treatment would be manual weed removal.
3. Herbicide applications will not be conducted during rain nor immediately following rain when soil is saturated or runoff, standing water, or a heavy dew is present.
4. Application will occur only under favorable weather conditions, defined as:
    - 30% or less chance of precipitation on the day of application based upon NOAA weather forecasting If rain, showers or light rains are predicted within 48 hours, the amount of rain predicted shall be no more than ¼ inch of rain, and rain does not appear likely at the time of application.
5. Mixing or application of herbicides will not occur within 100 feet of a well or spring used as a domestic water source.
6. Within 50 feet of a perennial waterway, only herbicides and surfactants that are registered with the California Department of Pesticide Regulation for aquatic use will be used.
7. Chlorsulfuron, Triclopyr, and Sulfometuron-methyl will not be applied within 50 feet of perennial rivers, streams, lakes, wet meadows, and other water bodies, including seasonally flooded SEZs
8. Between 50 and 10 feet of a perennial waterway, herbicide application methods may only include spot spraying, dip and clip and or wicking and wiping methods.
9. Within 10 feet of a perennial waterway, only dip and clip and/or wicking and wiping methods will be used.
10. Preparation of herbicides for application, including mixing or filling of tanks or backpacks, will take place outside of Riparian Conservation Areas and more than 300 feet from surface water.
11. Herbicide applications will not be conducted during rain nor immediately following rain when soil is saturated or runoff, standing water, or a heavy dew is present.
12. Follow the Lahontan Regional Water Quality Control Board Notification Protocol for all weed treatments. The protocol is included as Appendix B. Key components of the protocol are summarized here:

    Category I—No notification/consultation to Water Board staff is required prior to treatment if below criteria are met.

    - *Size and Cover Class Criteria for Category I***:** Infestations that are less than ¼ acre in size and less than 25% total weed cover. The majority of infestations in the CAIWMP area fall within this category.

    Category II—48-hour turnaround from Water Board staff for emergency situations

- *Size and Cover Class Criteria for Category II:* Infestations that are up to 1 acre in size and any cover class (excluding Category I, <1/4 acre and < 25% cover, which requires no Water Board notification).

Category III- Full consultation with Water Board staff required prior to treatment.

- *Size and Cover Class Criteria for Category III:* Any infestation greater than 1 acre, any infestation within 25 feet of a surface water; or non-emergency infestations (not Category II) from ¼ to 1 acre in area.

Wildlife (Aquatic and Terrestrial)

Issue: Activities associated with treating noxious weeds may potentially affect aquatic and terrestrial wildlife species such as the Sierra Nevada yellow-legged frog, Yosemite toad, Lahontan and Paiute cutthroat trout, and Sierra Nevada bighorn sheep. Herbicides could affect these species directly and indirectly if over-concentrations of herbicide are applied or applied incorrectly. Other noxious weed treatments may also indirectly affect aquatic and terrestrial wildlife due to disturbance occurring during the breeding season, particularly if treatments include ground disturbing activities such as mowing and prescribed burning.

Federally Threatened or Endangered Amphibian Habitat (Sierra Nevada yellow-legged frog and Yosemite Toad)

13. During the Annual Implementation Process, the Forest Fisheries Biologist will review new treatment sites identified under EDRR that are within 500 feet of Sierra Nevada yellow-legged frog or Yosemite toad suitable habitat. Treatment strategies in these areas will be developed collaboratively an annual basis by the noxious weed coordinator, the Forest Fisheries Biologist and the U.S. Fish and Wildlife Service if necessary, to assure treatment efforts do not impact frog and toad populations.
14. Only manual methods (hand pulling, digging, clipping and bagging) or direct-hand application of herbicide (dip and clip, wick and wipe) will be used in habitat for SNYLF and YT. No other treatment methods may be used.

In occupied habitat the following restrictions apply:

15. Weed treatments will not be conducted within 50 feet of known breeding locations for Sierra Nevada yellow-legged frog and Yosemite toad until after metamorphosis has occurred. Metamorphosis typically occurs around July 31st and will be confirmed with a site-specific survey before weed treatment.
16. To minimize disturbance to Sierra Nevada yellow-legged frogs and Yosemite toads, treatments for these species may only occur on a maximum of ½ acre per year, not to exceed 1/10 of an acre in any given location.
17. Immediately prior to any treatment activities, a Forest Service biologist who is trained in identifying and handling rare amphibians will survey the area for Sierra Nevada yellow-legged frogs and/or Yosemite toads. If individuals are found they will be relocated to a safe location that is nearby but out of potential harm's way from treatment activities. In most cases this will be less than 100 feet from the original location of the amphibian.

Within potential breeding areas considered suitable habitat[1] (areas not yet surveyed for occupancy) for Sierra Nevada yellow-legged frogs (lakes and streams) or Yosemite toad (ponds and surrounding meadows) the following restrictions apply:

18. A maximum of ½ acre will be treated per year, not to exceed 1/10 of an acre in any given location. If future surveys determine the suitable habitat is not occupied, treatment acre limits would no longer apply to that location.

Federally Threatened or Endangered Fish Habitat (Lahontan and Paiute cutthroat trout)

19. The Forest Fisheries Biologist will review new treatment sites that are with 300 ft of occupied Lahontan cutthroat trout or Paiute cutthroat trout streams to ensure treatment efforts follow design features outlined below.
20. When in proximity to Lahontan and Paiute (LCT) cutthroat trout habitat, every effort will be made to treat weeds by manual methods.
21. Only dip & clip and/or wicking & wiping applications of aquatic formulations of glyphosate or imazapyr will be used within 50 feet of ***occupied*** Lahontan and Paiute cutthroat trout habitat. No other herbicide treatment may be used.
22. Prescribed burn treatments will not occur within 300 feet of LCT or *PCT* ***occupied habitat.***
23. Tarping and mulching will not be used within ***occupied*** Lahontan (LCT) and Paiute cutthroat trout (PCT) habitat.
24. Mechanical methods (mowing, trimming) will not be permitted within 50 feet of an ***occupied LCT or PCT stream*** channel.
25. Targeted grazing will not be permitted within 50 feet of an ***occupied LCT or PCT stream*** channel.

Federally Threatened or Endangered Terrestrial Wildlife – Sierra Nevada bighorn sheep

26. Within Sierra Nevada bighorn sheep ***occupied and critical habitat***, every effort will be made to treat weeds by hand pulling and or clipping and bagging.
27. Hand pulling and herbicide application using dip and clip and wick or wipe techniques will be the only treatment methods used in Sierra Nevada bighorn sheep ***occupied and critical habitat.***
28. Weed treatments will not be conducted in any ***occupied*** habitat during the lambing period for Sierra Nevada bighorn sheep, which typically occurs between April and mid-July (USDI 2000).

Terrestrial Wildlife – other

29. Limited operating periods (LOPs) for all special status wildlife species will be implemented as necessary, based on the most current wildlife data from pre-project field surveys, or habitat suitability as determined by the district biologist. During the Annual Implementation Process, the noxious weed coordinator will coordinate with the District and/or Forest wildlife biologist before each treatment season, to verify that treatments would not disturb breeding activity of any special status terrestrial wildlife species.

[1] **Suitable habitat** consists of areas within the analysis area that are outside of critical habitat but meet the habitat characteristics defined in the primary constituent elements. Due to the lack of comprehensive surveys and the cryptic nature of the species', occurrences are unknown in these areas. (see Biological Assessment for details).

30. Triclopyr will not be used within 300 feet of an active Sierra Nevada willow flycatcher nesting territory.
31. The use of domestic sheep for targeted grazing will not be used in proximity to occupied bighorn sheep habitat.
32. Per Standards and Guidelines in the Greater Sage-grouse Bi-state Forest Plan Amendment (USDA 2016, Standard S-02), herbicide weed treatments will only occur outside of the critical disturbance period for Bi-State sage grouse (March 1 – May 15 (+/– 2 weeks depending on conditions). Herbicides should only be used in Bi-State sage grouse habitat if other integrated pest management approaches are inadequate or infeasible.
33. All additional pertinent 2016 Toiyabe Forest Plan Amendment standards and guidelines related to Bi-State sage grouse will also be reviewed and followed during treatment planning and implementation.

Rare Plants

Issue: Noxious weed treatments could potentially affect non-target native plant communities including rare plant populations. The use of herbicides and potentially other treatment activities could impact individual plants as well as populations. Modification of the plant community structure and composition could impact sensitive plants and their habitats.

34. Where treatments occur within 500 feet of Threatened, Endangered, Candidate or Proposed, and Region 4 Forest Service Sensitive (TECPS) or HTNF Watch List plant occurrences, weed crews would be instructed in the proper identification of plant species to be avoided to ensure that individual TECPS or HTNF Watch List plants are protected.

Federally Listed Threatened, Endangered, Proposed and Candidate Plants - *Ivesia webberi (Threatened)*

In ***occupied habitat***, the following restrictions apply:

35. Herbicide treatment of grasses will occur in the fall when *Ivesia webberi* is dormant.
36. No herbicide application by truck or UTV mounted sprayers. All application will occur with backpack sprayers, spray wands, or other direct application equipment.
37. A small containment kit would be carried by herbicide applicators.
38. Only dip and clip or wick and wipe method will be used to apply herbicides to broad-leaf weeds.
39. Mixing and loading of herbicides prohibited.
40. No prescribed burning or mechanical treatments (mowing) will occur.
41. Mulching and tarping will not be used.
42. Within occupied habitat, the Forest Service District or Forest botanist will accompany weed crews when treatments are conducted

In unoccupied ***designated critical habitat***, the following treatment restrictions apply:

43. To limit the potential for herbicide spills within *Ivesia webberi* habitat, no mixing and loading of herbicides would occur within occupied or unoccupied critical habitat for *Ivesia webberi*.
44. Survey within 500 feet of infestations identified for herbicide and biological treatment, and within 25 feet of new infestations identified for manual treatment. If *Ivesia webberi* plants are found, all design features for occupied habitat will be implemented.
45. No prescribed burning or mechanical treatments (mowing) will occur.

Other Rare Plants –Region 4 Forest Service Sensitive and HTNF Watch List plants:

46. No mixing and loading of herbicides would occur within occupied habitat for, Sensitive or Watch List plant species to limit the potential for herbicide spills.
47. Broadcast spray (using a truck/UTV mounted sprayers) would not occur within 500 feet of Forest Sensitive or HTNF Watch List plant occurrences unless specific alternative treatment guidelines are established by the Forest or District Botanist.
48. Directed broadcast/spot spray (using a backpack sprayer) would not occur within 100 feet of Forest Sensitive or HTNF Watch List plant occurrences unless specific alternative treatment guidelines are established by the Forest or District Botanist.
49. Herbicide treatments would not occur within 500 feet of Forest Service Sensitive bryophyte occurrences unless specific alternative treatment guidelines are established by the Forest or District Botanist.
50. To protect riparian and wet meadow vegetation communities, herbicide application in riparian corridors and wet meadows would be limited to direct foliar spray or wiping methods and spray will be directed away from native vegetation.
51. Staging areas and fire lines for prescribed burning treatments would not be constructed within known occurrences of Forest Sensitive or HTNF Watch List plant species.
52. When Forest Sensitive or HTNF Watch List plant species are within 25 feet of prescribed burning treatments, plants would be clearly identified and care taken to avoid direct impacts to individuals.
53. When Forest Sensitive or HTNF Watch List plant species are within 25 feet of digging, tarping, or mechanical treatments, plants would be clearly identified and care taken to avoid direct impacts to individuals. No buffers are required for hand pulling.
54. Where determined necessary based on habitat potential, surveys will be conducted for Forest Sensitive and HTNF Watch List plant occurrences within 500 feet of new infestations identified for chemical and biological treatment, and within 25 feet of new infestations identified for manual treatments prior to implementation.
55. Within ***riparian plant communities***, surveys would be conducted for Forest Service Sensitive *Botrychium* species prior to any weed treatments. Any new occurrences discovered during these surveys would be clearly identified and avoided during treatment activities.

Recreation/Wilderness/Rangeland Resources/Cultural Resources

Issue: Weed treatment, particularly herbicide use, could affect visitors to the Forest, those engaging in special uses of the Forest, and tribal uses.

56. Regional Forester approval (through a Minimum Requirements Analysis) will be required if herbicide use is proposed to control an invasive plant infestation in any Wilderness Area (FSM 2320, and Wilderness Management Plans).
57. Regional Forester Approval will be required if herbicide use is proposed to control an invasive plant infestation in a Research Natural Area (Refer to FSM 4060).
58. Herbicide treatments at special use sites, along Forest Service trails, at developed recreation sites and areas of concentrated public use will avoid holidays and will be scheduled to avoid high use

periods of the day. Permittees and District Resource or Recreation Managers will be notified prior to treatments so that treatments can be scheduled to minimize conflicts.

59. In areas of high public use, areas treated with herbicides will be flagged and signed to warn the public of treatment activities**.**
60. The Forest Service will coordinate with the Pacific Crest Trail Association (PCTA) during the annual implementation process if new treatments other than hand pulling are proposed within the viewshed of the Pacific Crest Trail. Temporary interpretive signing would be used (outside of Wilderness) if the trail's viewshed is altered by treatment activities.
61. Cultural resource inventories and evaluations will be conducted on a case by case basis per the Weeds Programmatic Agreement.
62. Permittees and District Resource or Recreation Managers will be notified prior to herbicide treatments so that treatments can be scheduled to minimize conflicts with high use areas or high use time periods.
63. The Districts will continue to consult with Native American tribes and develop management strategies which protect the integrity of traditional cultural plant gathering locations. Herbicides will not be used to treat noxious or invasive weeds in any Area of Concern or gathering site for local Tribes without consulting with the Tribes.
64. Grazing permittees will be notified when treatments are proposed on their active allotments. If more intensive treatments are required on a particular allotment, treatment activities will be discussed with the permittee and included in the Annual Operating Instructions for Grazing Permits.
65. Any need to exclude livestock from treated or revegetated sites within an allotment would be discussed with the permittee in the Annual Operating Instructions meeting, and would be met through herding practices (sheep), or temporary fencing (cattle) constructed by the Forest Service.

VI. ANALYSIS PROCESS

Background Research – For the purpose of this analysis, aerial photos, soil maps, GIS coverages, and other existing documents were reviewed to determine suitable habitat potential for Forest sensitive and threatened, and endangered species. District and state wildlife databases were examined to identify any known locations or potential habitat that may occur within or adjacent to the project boundary. Recently produced sage grouse and desert bighorn sheep distribution maps were obtained from California Department of Fish and Game and Nevada Department of Wildlife to determine proximity of these species to the project area. In addition, consultation with State biologists was conducted to gain local and expert knowledge pertaining to potential habitat for to sage grouse, bighorn sheep, mule deer and other species that could potentially occur in the project area.

ID Team Meetings-Interdisciplinary team meetings for this project have been ongoing since 2015. Both field and in-office meetings were conducted on numerous occasions to examine field conditions of the project area and discuss specific components of the proposed action. Resource specialists were encouraged to identify and incorporate specific design features into the proposed action to minimize potential impacts.

Habitat Analysis-For most species, determining available potential habitat in the project area was based on information from the California Integrated Weed Management Vegetation Report (project record). In this report, vegetation communities in the project area were determined based on the U.S. Forest Service Pacific Southwest Region (USFS PSW) CALVEG Vegetation Classification and Mapping System GIS data (Table 3.). These communities represent different vegetation and habitat types and potentials within the project area. Where specific locations of species were not known, general habitat parameters at a coarse scale were used to estimate potential habitat for each species. For example, acres of mixed conifer habitat within the project area was used as an estimate of habitat potential for the white-headed woodpecker. Forest Service databases and spatial information were also accessed to determine known locations and breeding habitat of special status species analyzed in this report species. Currently mapped noxious weed locations were queried from the Forest Service FACTS database and then overlay with known breeding territories for Forest Sensitive species and MIS, as well as occupied and critical habitat for Threatened and Endangered species. More specific habitat analysis was conducted using Geographical Information Mapping Systems (GIS) to determine noxious and invasive weed occurrences within occupied or potential habitat for Threatened, Endangered, Proposed, Sensitive, MIS, and other species of concern species whose unique habitat requirements could be queried from the GIS vegetation layers.

Table 3. Primary Vegetation Communities within the California Integrated Weed Management Project area.

Plant Community	Weed Risk*	Acres Managed by the HTNF	Number of Known Infestations	Acres Currently Identified
Alpine-Dwarf Shrub	Low	14,004	0	0
Annual Grassland	High	7,732	27	51
Aspen	Low	17,053	4	0.8
Barrens	Low to Moderate	67,077	13	13
Bitterbrush	Moderate	46,950	66	208
Eastside Pine	Moderate	33,967	111	219
Lodgepole Pine	Low	52,105	6	0.6
Low Sagebrush	Low	38,199	6	1
Montane Chaparral	Moderate	50,986	60	440
Montane Riparian	High	6,856	10	11
Pinyon-Juniper	Moderate	53,678	12	20
Subalpine Conifer	Low	39,968	1	0.1
Sagebrush	Moderate to High	174,701	68	80
Sierran Mixed Conifer	Low to Moderate	40,219	35	32
Wet Meadow	High	8,620	30	99
White Fir	Low	12,003	1	0.1

Source: USFS PSW CALVEG Classification and Mapping System GIS data.

***Risk criteria: Low** - few or no weeds present; few vectors; previous disturbance low; high canopy cover.
Moderate - weeds present; moderate expansion potential; canopy cover & previous disturbance moderate.
High - heavy infestations and/or aggressive weeds present; probable expansion in absence of treatment; abundant vectors; low canopy cover; previous disturbance high.

VII. SPECIES ANALYZED

A. FEDERALLY LISTED SPECIES

In accordance with Forest Service Manual (FSM) direction 2672.42, and to meet legal requirements under Section 7 of the Endangered Species Act of 1973 (as amended), a Biological Assessment (BA) was prepared to analyze the potential effects of the California Integrated Weed Management Project on the following species federally listed as Threatened, Endangered, or Proposed that have potential to occur in the project area. Based on the effects analysis and determination in the BA, Formal Consultation with U.S. Fish and Wildlife Service (FWS) was initiated by the Forest Service in February, 2017 and a Biological Opinion (BO) was issued to the Forest Service on August 11, 2017. The BA and the BO are included in the project record.

- Lahontan cutthroat trout
- Paiute cutthroat trout
- Sierra Nevada yellow-legged frog
- Yosemite toad
- Sierra Nevada bighorn sheep
- North American wolverine
- *Ivesia webberi* (Included in Botany specialist Report)

B. FOREST SENSITIVE SPECIES

A Biological Evaluation (BE) was prepared for the California Integrated Weed Management Project to analyze impacts to Region Four Forest Sensitive wildlife species which have potential to occur in the project area (project file). Based on this analysis, the following wildlife species were determined to potentially be impacted from the proposed action:

- Northern goshawk
- California spotted owl
- Bi-state Distinct Population Segment (DPS) sage grouse
- Mountain quail
- Spotted bat
- Flammulated owl
- White-headed woodpecker
- Sierra Nevada red fox
- Townsend's big-eared bat

C. MANAGEMENT INDICATOR SPECIES

Management indicator species (MIS) are identified in the Toiyabe National Forest Land and Resource Management Plan as representing a group of species having similar habitat requirements. MIS are not federally listed as threatened, endangered, or Forest Sensitive but have the potential to be affected by project activities. A review was conducted to determine: 1) if the project is within the range of any MIS, 2) if habitat is present within the proposed project area, and 3) if there are potential direct, indirect or cumulative effects on habitat components. MIS associated with habitats that may be affected by the project will be analyzed below:

- Northern Goshawk*
- Yellow Warbler
- Yellow-Rumped Warbler
- Hairy Woodpecker

- Williamson's Sapsucker
- Sage Grouse*
- Mule Deer
- American Marten
- Macroinvertebrates
- Paiute Cutthroat Trout**
- Lahontan Cutthroat Trout**

**Species also listed as Forest Sensitive and are addressed in the Biological Evaluation*
*** Species are also listed as federally Threatened and are addressed in the Biological Assessment*

D. OTHER SPECIES CONSIDERED

Two additional species (or species groups) were selected for analysis in this Specialist Report:

- **Sierra Nevada willow flycatcher**- The Sierra Nevada willow flycatcher is listed as a California State Endangered species and is also considered to be a Species-at-Risk under the Sierra Nevada Framework.
- **Neotropical Migratory Birds**-According to the Memorandum of Understanding between the USDA Forest Service and the US Fish and Wildlife Service the conservation of migratory birds is to be promoted by ensuring that bird conservation is addressed when planning for land management activities.

VIII. SPECIES ACCOUNTS

A. Federally Listed and Species Proposed for Listing

Table 4: Federally listed Threatened, Endangered, and Proposed species with potential to occur in the project area

Species	Status	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)	Threatened (MIS)	Perennial streams, rivers and other perennial waterbodies	CRD BRD	CRD/BRD	LCT occupy approximately 53.2 miles of streams and rivers within the Carson, Truckee, and Walker River Basins
Paiute cutthroat trout (*Oncorhynchus clarkii seleniris*)	Threatened (MIS)	Perennial streams, rivers and other perennial waterbodies	CRD	CRD	Paiute cutthroat trout occur only on the CRD in the Carson Iceberg Wilderness
Sierra Nevada yellow-legged frog (SNYLF) (*Rana sierrae*)	Endangered	High elevation stream and lake habitats	CRD BRD	CRD BRD	The project area includes approximately 49,625 acres of designated critical habitat for SNYLF
Yosemite toad (*Anaxyrus canorus*)	Threatened	High elevation wet meadows, streams and ponds	CRD BRD	CRD BRD	The project area includes approximately 27,929 acres of critical habitat for the Yosemite toad
Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*)	Endangered	Sub-alpine and alpine habitats that include steep rocky terrain	BRD	BRD	The project area includes approximately 4,239 acres of designated Critical Habitat for SNBS.

Species	Status	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
North American wolverine (*Gulo gulo luscus*)	Proposed	Restricted to alpine and sub-alpine communities for most of the year	CRD BRD	No	Wolverines are not known to occur in California

CRD=Carson Ranger District
BRD=Bridgeport Ranger District

Note: For the purposes of providing a brief summary, species are grouped below based on similarities in habitat requirements. Please see the Biological Assessment for the *California Integrated Weed Management Project for a detailed analysis related to species accounts and potential effects to Threatened, Endangered and Proposed species.*

LAHONTAN AND PAIUTE CUTTHROAT TROUT

The Lahontan cutthroat trout (LCT) and Paiute cutthroat trout (PCT) are listed as Threatened under the Federal Endangered Species Act (USDI 1975). Within the project area, LCT occupy approximately 53.2 miles of streams and rivers within the Carson, Truckee, and Walker River Basins. Paiute cutthroat trout occur only in the Carson Iceberg Wilderness and occupy approximately 11.5 miles of stream in the Silver King Watershed. Degradation to habitat is considered one of the largest threats to both species as well as the risk of hybridization and competition from non-native fish species. Current weed infestations within LCT and PCT habitat are minimal. Within the project area there are no known weed infestations within 300 feet of occupied PCT habitat and only approximately 3.3 acres of noxious weed infestations occur within 300 feet of occupied LCT habitat.

SIERRA NEVADA YELLOW-LEGGED FROG and the YOSEMITE TOAD

The Sierra Nevada yellow-legged frog (SNYLF) and the Yosemite toad (YT) are listed as endangered and threatened (respectively) under the Endangered Species Act (USDI 2014). Both species and their designated critical habitat occur within the project area on both the Bridgeport and Carson Ranger Districts. The project area includes approximately 49,625 acres of designated critical habitat for SNYLF and 27,929 acres of critical habitat for the Yosemite toad (USDI 2016). Both rare amphibians occupy high elevation stream and pond habitats, including riparian areas and wet meadows. The largest threat to the SNYLF is predation from non-native fish and diseases such as chytrid fungus. Cattle grazing is considered to be one of the largest threats to Yosemite toads due to the toad's dependence on meadows. Yosemite toads are also susceptible to diseases such as chytrid fungus. Currently there is one small (<.1 acres) infestation of weeds within unoccupied critical habitat for SNYLFs and there are no known noxious weeds in Yosemite toad occupied or critical habitat. The high elevation, alpine and subalpine environment these species occur in are typically not conducive to large noxious weed infestations.

SIERRA NEVADA BIGHORN SHEEP

The Sierra Nevada bighorn sheep (SNBS) is listed as Endangered under the federal Endangered Species Act (USDI 2000). Currently within the project area, SNBS only occur at the south end of the Bridgeport

Ranger District primarily at elevations above 7,000 feet. Approximately 4,239 acres of designated Critical Habitat for SNBS also occur in this area (USDI 2008).

Sierra Nevada bighorn sheep occupy sub-alpine habitats that include open slopes with rough, rocky terrain that is sparsely vegetated and characterized by steep slopes and canyons. Most SNBS sheep live between 10,000 and 14,000 feet in elevation in the summer and as low as 4,800 feet elevation in the winter.

Disease transmission from domestic sheep or goats is considered to be one of the greatest threats to bighorn sheep. Within the project area, there are no known noxious or invasive weed infestations within occupied or critical habitat for SNBS.

Sub alpine and alpine habitats associated with SNBS are not conducive to large infestations of noxious weeds. Noxious and invasive weeds rarely occur in these environments and then only occur typically as isolated individual plants rather than large homogenous infestations. Currently no known or mapped locations of weeds above 8,000 feet occur in the Bridgeport area and only one mapped location occurs between 7,000 and 8,000 feet (curly dock). However, changing climates and the potential for a large disturbance such as wildfire, could provide the conditions suitable for development of or expansion of small individual weed infestations.

NORTH AMERICAN WOLVERINE

In 2013, the North American wolverine was proposed for listing as Threatened under the Endangered Species Act (USDI 2013). The FWS is conducting a new review on the wolverine population to determine whether it meets the definition of a threatened or endangered species, or if the animal is warranted for listing at all.

Wolverines do not occur in the project area and are no longer known to occur in California (USDI 2017, Aubry 2007). Only one Sierra Nevada record exists after 1930, indicating that this population was likely extirpated in the first half of the 1900s (USDI 2013). In 2008, a wolverine was detected on the Tahoe National Forest. This wolverine was determined to be a single animal that originated from the Rocky Mountains and is not thought to be indicative of a larger, local population (USDA 2008, USDI 2013). There is no evidence that California currently hosts a wolverine population or that female wolverines have made, or are likely to make, similar dispersal movements (USDI 2013). The nearest known resident population of wolverines occurs about 600 miles northeast of the Tahoe and Humboldt-Toiyabe National Forest in Idaho's Sawtooth Range (USDA 2008). Wolverines are restricted to alpine and sub-alpine communities for most of the year due to their need for persistent snow cover throughout the reproductive period (Aubry et al 2007). Climate change is considered to be one of the largest threats to wolverines (USDI 2013). Climate change can affect wolverines directly through physiological stress, but also indirectly through changes to availability and distribution of wolverine habitat, including sub-alpine snow fields.

B. Forest Sensitive Species

Plants and animals designated as sensitive are identified by Regional Foresters as species for which population viability is a concern as evidenced by current or predicted downward trends in population

numbers, density, or habitat (FSM 2670.5). The Forest Service must implement management practices that ensure that sensitive species do not become threatened or endangered and must implement management objectives for populations or habitat of sensitive species (FSM 2670.22).

NatureServe compiles population data on over 70,000 species world-wide and provides information on the status of populations both global and within individual states with the United States. Conservation status ranks range from critically imperiled (1) to demonstrably secure (5). Status is assessed and documented at three distinct geographic scales: global (G), national (N) and subnational (S) (i.e., state/province/municipal). These status assessments are based on the best available information and consider a variety of factors such as species abundance, distribution, population trends and threats. State rankings for both California and Nevada were included due to the proximity of Nevada (and the Great Basin) to the project area and overlap in habitats from one state to another. If available, local population information from state and/or federal agencies was included in the analysis (Table 5).

The global rankings are defined as the following (NatureServe 2017):

- **G1- Critically Imperiled**: At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- **G2 –Imperiled**: At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
- **G3 –Vulnerable:** At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
- **G4 -Apparently Secure:** Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- **G5 –Secure:** Common; widespread and abundant.

The State rankings for are defined as the following (NatureServe 2017):

- **S1-Critically Imperiled:** Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- **S2-Imperiled:** Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- **S3-Vulnerable**: Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4- Apparently Secure: Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- **S5-Secure:** Common, widespread, and abundant in the nation or state/province.
- **SNR-Unranked:** Nation or state/province conservation status not yet assessed.

Table 5. Region 4 Forest Sensitive animal species that are known or expected to occur on the Carson and Bridgeport Ranger Districts. *North American Wolverine is Proposed for federal listing under ESA and is discussed in the Threatened and Endangered Species section

Species	Status/Trend	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
California Spotted owl (*Strix occidentalis occidentalis*)	FSS/ G3G4T3 CA-S3 NV-S1	Late seral, closed canopy coniferous forest	CRD BRD	CRD	Spotted owls are known to nest in four location on the CRD. Habitat is present on BRD but no detections
Northern goshawk (*Accipiter gentilis*)	FSS/MIS G5 CA-S3 NV-S2	Late seral, closed canopy coniferous forest	CRD BRD	CRD BRD	Goshawks are known to nest in several location on both districts
Bi-State DPS sage-grouse (*Centrocercus urophasianus*)	FSS G3G4T3 CA-S2S3 NV-S3	Contiguous sagebrush interspersed with grassy meadows (for lekking)	CRD BRD	CRD BRD	Bi-state sage grouse have several lekking and nesting areas located on the BRD. Nesting is not known to occur on the CRD
Mountain quail (*Oerortyx pictus*)	FSS/ G5 CA-SNR NV-S3	In the Sierra Nevada, associated with conifer stands that are mixed with montane chaparral brush	CRD BRD	CRD BRD	Mountain quail are widely distributed throughout the Sierran coniferous forests of both districts, primarily above 5,000 ft elevation
Great gray owl (*Strix nebulosa*)	FSS/ G5 CA-S1 NV-	Mixed coniferous forest near large meadows or other vegetated openings.	CRD BRD	No	No detections on either district in more than 25 years.
Bald eagle (*Haliaeetus leucocephalus*)	FSS/ G5 CA-S2 NV-S1BS3N	Nest in large trees (> 43" dbh) with heights usually over 100 feet and are in stands where the canopy cover is less than 40%. Nests usually within one mile of water	CRD BRD	CRD BRD	Bald eagle nests occur on CRD on non-NFS lands and on BRD on FS lands.
Peregrine falcon (*Falco peregrinus anatum*)	FSS/ G4 CA-S3S4 NV-S2	Peregrines nest on rocky cliffs or rocky outcroppings that are generally more than 200 feet high.	CRD BRD	No	Peregrines are not known to nest in the project area. An active nest does occur on the LTBMU NF approximately 10 miles from the CRD project area.
Flammulated owl (*Otus flammeolus*)	FSS/ G4 CA-S2S3 NV-S4B	Prefer of yellow pine forests mixed with red fir, aspen, white fir, and incense cedar. Require large snags with cavities for roosting and nesting	CRD BRD	CRD	Flammulated owls are known to nest in one location within the project area, located on the CRD. Other nest locations occur outside of the project area on both districts
White-headed woodpecker (*Picoides alborlarvatus*)	FSS G4 CA-S4 NV-S2	Mixed conifer/aspen forest. Require large snags with cavities for roosting and nesting	CRD BRD	CRD BRD	White-headed woodpeckers are fairly common throughout the Sierran coniferous forests on both districts.
Pygmy rabbit (*Brachylagus idahoensis*)	FSS G4 CA-S3 NV-S3	Dense stands of big sagebrush found in alluvial fans, rolling landscapes, and large flat valleys.	BRD	BRD	Pygmy rabbits are known to occur in the Bodie Hills area on the BRD.

Species	Status/Trend	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
Sierra Nevada red fox (*Vulpes vulpes necator*)	FSS/Candidate / G5T1T2 CA-S1 NV-S3	Typically subalpine conifer, barren and shrub habitats at high elevations (>10,000 feet)	CRD BRD	CRD BRD	SNRF were rediscovered on the BRD in the Sonora Pass area in 2010 and more recently have been observed moving north and onto the CRD
North American wolverine (*Gulo gulo luteus*)*	FSS/Proposed/ G4 CA-S1 NV-SH	Typically subalpine conifer, barren and shrub habitats at high elevations (>10,000 feet)	CRD BRD	NO	Wolverines are not known to occur in CA. Nearest population of wolverines occurs about 600 miles northeast of the HTNF Idaho's Sawtooth NF.
Bighorn sheep (*Ovis Canadensis spp*)	FSS/ G4 CA-S3 NV-S4	Variety of habitats including sagebrush habitat, pinyon-juniper woodlands, and mountain sagebrush with a grassy understory.	CRD BRD	BRD	Desert Bighorn sheep are known to occupy a relatively small area on the BRD primarily within the East Walker River watershed in the Sweetwater Mountain range.
Spotted bat (*Euderma maculatum*)	FSS/ G4 CA-S3 NV-S2	Variety of habitat types including ponderosa pine, pinyon-juniper forests, depend on rock cliff faces for roosting.	CRD BRD	NO	Spotted bat locations are not known within the project area. However , the species is considered to be common throughout its range
Townsend's big-eared bat (*Corynorhinus townsendii*)	FSS/ G4 CA-S2 NV-S2	Variety of habitat types; strongly correlated with the availability of caves and cave-like roosting habitat-	CRD BRD	CRD	Townsends big-eared bats are known to roost in abandon mines in the project area on the CRD in Alpine County.

Note: For the purposes of providing a brief summary, species are grouped below, where appropriate based on similarities in habitat requirement. Please see the Biological Evaluation for the California Integrated Weed Management Project for a more detailed analysis related to species accounts and potential impacts to Region 4 Forest Sensitive species.

CALIFORNIA SPOTTED OWL AND NORTHERN GOSHAWK

The California spotted owl and northern goshawk are Forest Service designated sensitive species; the northern goshawk is also a Management Indicator Species (MIS) for late seral closed canopy coniferous forest. Both species utilize dense, multi-layered mature forested stands for nesting and roosting. Foraging may occur in forested stands with moderate to dense canopy cover and for goshawks, often includes areas with small openings and meadows. Spotted owls and goshawks prey upon a variety of small mammals and birds. Within the project area, spotted owls are known to occur between 5,000 ft. and 7,100 ft. in elevation, with most of the nesting pairs found in the Sierran mixed conifer habitat type.

The HTNF conducts annual surveys for spotted owls and northern goshawks following the Region 5 Protocol (USDA 1993, USDA 2000). Surveys are conducted in historical nesting areas as well as in suitable habitat in proposed project sites. In accordance with the Sierra Nevada Forest Plan Amendment,

nesting territories for spotted owls and goshawks are delineated into approximate 300 acre and 200 acre Protected Activity Centers (PACS), respectively, to protect the best available habitat that surrounds a nest. Within the project area, there are currently four spotted owl PACS totaling approximately 1,200 acres, all on the Carson Ranger District. None of these PACS currently have noxious weed infestations. Within the project area, there are currently 15 northern goshawk PACS; six on the Bridgeport Ranger District and nine on the Carson Ranger District, totaling approximately 3,644 acres. Of these 15 PACs, only one is known to have noxious weeds, a 0.9 acre infestation of musk thistle.

The major threats to spotted owls and goshawks include loss of critical nesting and foraging habitat from land management practices i.e. logging, livestock grazing, etc) and other natural events (fire, wind storms etc). Human disturbance is another factor that may impact nesting success and subsequent viability if the disturbance occurs during the critical egg laying period (generally between March and May).

BI-STATE DISTINCT POPULATION SEGMENT of GREATER SAGE GROUSE

Greater sage-grouse on the Bridgeport and Carson Ranger Districts are part of a distinct population segment (DPS) of sage grouse known as the 'Bi-State DPS'. The Bi-State population are the only sage grouse population found within the project area The Bi-state population was proposed for listing as threatened by the U.S. Fish and Wildlife Service (USFWS) in October 2013. In May of 2015, the USFWS withdrew the proposed rule to list the Bi-State DPS of greater sage-grouse as threatened, as well as the proposed rule to designate critical habitat. In 2016, the Forest Service amended the 1986 Toiyabe Forest and Land Management Plan to include standards and guidelines to help meet the desired conditions for Bi-State sage grouse (USDA 2016).

The range of the Bi-State DPS occurs over an area approximately 170-miles long and up to 60 miles wide. It includes portions of five counties in western Nevada: Douglas, Lyon, Carson City, Mineral, and Esmeralda; and three counties in eastern California: Alpine, Mono, and Inyo. The state wildlife agencies from Nevada and California have identified six Population Management Units (PMUs) to describe occupied habitat within the Bi-state area. Two of these PMUs occur on the Bridgeport Ranger District (Desert Creek/Fales and Mount Grant) and one occurs on the Carson Ranger District (Pine Nut). The PMUs are comprised of a variety of public (BLM, USFS) lands as well as state, private and Native American lands. Approximately 347,794 acres of the PMUs occur on HTNF lands within the project area.

In 2012, an Action Plan for the Bi-State sage grouse was prepared to develop a comprehensive set of strategies, objectives, and actions to accomplish specific goals and objectives for effective long-term conservation of the Bi-State sage-grouse and their habitats (Bi-State Plan 2012). The Action Plan also provided risk assessments for each PMU based on identified threats that were pertinent to each area. Invasive species was listed as a "high" potential threat only in the Pine Nut PMU. This area has endured numerous wildfires in the past two decades resulting in type conversion of thousands of acres of native plant communities to cheatgrass throughout the PMU. Currently within the portion of the Pine Nut PMU that occurs within the project area, there are approximately 274 acres of mapped invasive grasses and noxious weeds. This accounts for approximately 0.4% of the total available acres of the PMUs within the project area.

The other PMUs are considered low to moderate risk of invasions primarily due to a more infrequent fire history and generally higher elevation compared to the Pine Nut PMU. Within the Desert Fales PMU only

0.6 acres of noxious weeds have been mapped (within the project area) and none are currently known to occur within the Mt. Grant PMU. However, all of the PMUs remain vulnerable to future infestations, particularly if a large enough disturbance were to occur (e.g wildfire). Non-native annual grasses such as cheatgrass is the most prominent weed that occurs in sage grouse habitat. Noxious weeds such as thistles, knapweeds, and whitetop occur only rarely in sagebrush habitat due to the lack of water and other habitat features associated with those species.

Sage grouse are largely dependent upon sagebrush ecosystems for both foraging and breeding. Breeding sites, or "leks" are usually situated on ridge tops or grassy areas surrounded by a substantial brush and herbaceous component (Schroeder et al 1999). Within the project area there are three active leks and one inactive lek, all within the Bridgeport Ranger District. Summer and dispersal habitat consists of sagebrush mixed with areas of wet meadows, riparian, or irrigated fields.

Threats to Bi-State sage grouse include pinyon-juniper encroachment into sagebrush communities, habitat type conversion to cheatgrass, human disturbance (OHV), infrastructure (roads and fences), and energy development (wind).

MOUNTAIN QUAIL

The mountain quail is the largest North American quail and is a resident from southwestern British Columbia, western and southern Washington, central Idaho south through the mountains of California and western Nevada (NDOW 2012). Mountain quail are known to occur throughout the Carson Ranger District, usually at elevations above 5,000 feet. Mountain quail are listed as a Forest Sensitive species in the Intermountain and Pacific Southwest and Northwest Regions of the Forest Service. Mountain quail are known to occur throughout the Carson and Bridgeport Ranger Districts, usually at elevations above 5,000 feet.

Mountain quail often nest in high elevations up to 10,000 feet, occasionally migrating to lower elevation in the fall (Crawford and Pope 1999). In the Sierra Nevada, mountain quail are associated with conifer stands that were mixed with montane chaparral brush communities composed of chinquapin, snowbrush, and Greenleaf manzanita (Ibid). In the Sierra Nevada, the nesting period for mountain quail generally begins sometime in May with pair-bonding and nest site selection and ends in mid-July when the young are hatched and independent. Nests are often concealed under logs or fallen pine branches, in weeds, shrubs, or at the base of large trees. Mountain quail usually nest within a few hundred yards of water to provide chicks with required water supply after hatching (Brennan et al 1987). Mountain quail feed on seeds, fruit, and insects.

Approximately 91,205 acres of mixed conifer and montane chaparral habitat occur within the project area (CAIWMP Vegetation Report). Within this habitat type, noxious weeds are known to occur on 472 acres or 0.5% of the available mountain quail habitat.

In the Sierra Nevada, the main threat to mountain quail is loss of habitat due to human development (urbanization) (NDOW 2012). Other threats to mountain quail include habitat degradation/loss from livestock grazing, intense wildfires, water diversions, invasive plant species, and fuels reduction projects (GBBO 2010).

GREAT GRAY OWL

The majority of great gray owls found in California are known to occur in the Sierra Nevada, and primarily only in the greater Yosemite area (Hull et al 2010). The Sierra Nevada great gray owl population is the most southerly in the world. Recent research has concluded that the Sierra Nevada is home to a genetically distinct population of great gray owls, compared to great gray owls outside of California (Keane et al 2011).

Great gray owls are found in mixed coniferous forest from 2,400 to 9,000 feet elevation where such forests occur in combination with meadows or other vegetated openings. Nesting usually occurs within 600 feet of the forest edge and adjacent open foraging habitat. Virtually all of great gray owl records in California are from in or near meadow locations (Beck and Winter 2000).

Great gray owls are not currently known to occur on the either the Carson or the Bridgeport Ranger District. Historical sightings were recorded in most cases more than 30 years ago and were considered incidental with no observed breeding. (Gould 2003, CNDDB 2012a, Shanley personal communication 2002). Based on the historical sightings and the availability of suitable habitat, six great gray owl Protected Activity Centers (PACs) were delineated on the Bridgeport Ranger District totaling 1,190 acres. Based on GIS analysis conducted for this project, currently there are no known weed infestations within these PAC areas.

The primary threat great gray owls is habitat loss from timber harvest (Williams 2012).

BALD EAGLE

The bald eagles' breeding range in the west extends along the western coast from southern Alaska through the Pacific Northwest to Northern California. The local nesting distribution of bald eagles on the Carson Ranger District includes three nests in Alpine County, none of which are on National Forest System lands.

Nesting for bald eagles generally occurs February through July. Incubation may begin in late February to mid- March, with the nestling period extending to the end of June. From June through August, the fledglings remain restricted to the nest until they are able to move around within their environment. In California, trees selected for nesting are characteristically one of the largest in the stand with tree heights usually over 100 feet tall with an average diameter of 43 inches and are in stands where the canopy cover is less than 40% (Jackman and Jenkins 2004). The majority of bald eagle nests are within one mile of water and almost always have an unobstructed view of a waterbody. Bald eagles generally require large bodies of water such as lakes or rivers which provide abundant forage and adequate room for foraging. The most common prey items for bald eagles include fish, waterfowl, jackrabbits, and various types of carrion (USDI 1986).

On the Bridgeport Ranger District a single bald eagle nest occurs at approximately 7,500 elevation in the Twin Lakes area. Three bald eagle nests occur on the Carson Ranger District but all are located on non-National Forest System Lands. Two of the nesting territories are adjacent to Forest Service lands; currently there are no mapped noxious weeds within 300 feet of either of these nests.

Habitat loss and human disturbance, particularly during the nesting period, are considered the largest threats to bald eagles.

PEREGRINE FALCON

The peregrine falcon has the most extensive natural distribution of any bird in the world and is found on all continents except Antarctica (White et al 2002). Peregrine falcons were delisted from the Endangered Species list in 1999 following the ban of DDT in 1972, and a long recovery effort. In 2009, the California Department of Fish and Game (CDFG) Commission also delisted the American peregrine falcon in part because the breeding population had increased dramatically and reached or exceeded historic levels in California (Comrack and Logsdon 2008). In addition, the threat posed by organochlorine chemicals (DDT) had diminished (Ibid).

Peregrine falcons were recorded nesting on the Bridgeport Ranger District in 2013, approximately 30 miles north of the project area. Peregrines are not known to nest on the Carson Ranger Districts; however, nesting activity has been recorded on the Lake Tahoe Basin Management Unit, approximately 10 miles north of the Carson Ranger District boundary. Peregrines nest on rocky cliffs or rocky outcroppings that are generally more than 200 feet high. Because peregrines are known to travel as far as 15 miles a day in search of prey, it is possible that the LTBMU pair occasionally forage on the Carson Ranger District (Enderson and Craig 1997). Peregrine falcons generally search for prey while soaring or perched on cliffs at higher altitudes, and capture prey (primarily birds such as pigeons, waterfowl and songbirds) while in flight by diving from above.

Although the risk of exposure to DDT is no longer considered a threat, human disturbance from recreation activities (rock climbing, hiking), falconers, and researchers can result in injury and mortality to peregrine falcons (Comrack and Logsdon 2008).

FLAMMULATED OWL AND WHITE-HEADED WOODPECKER

Flammulated owls occur in montane regions of California and in Nevada, flammulated owls have been documented during the breeding season in eleven mountain ranges including the Carson Range (Dunham et al. 1996). In California, white-headed woodpeckers occur in the Sierra Nevada, Cascade, Klamath, Transverse and Peninsula Ranges, and Warner Mountains (Polite and Harvey 2010). Suitable habitat for flammulated owls and white-headed woodpeckers occurs on both Carson and Bridgeport Ranger districts. At least four nesting territories for flammulated owls are known to occur on the Carson Ranger District, one within the project area. Specific nest locations are not known for Bridgeport. Within the project area there is approximately 114,154 acres of Subalpine, Sierran mixed conifer, and eastside pine habitats that could provide potential habitat for flammulated owls and white-headed woodpeckers (CAIWMP-Vegetation Report). Of these acres, approximately 251acres, or 0.2%, are known to have some level of weed infestations, most of which occur in the sagebrush dominated areas of mapped eastside pine habitat and are not considered high quality habitat for either the flammulated owl or white-headed woodpecker.

Flammulated owls nest in a variety of conifer forest types between 6,000 and 10,000 feet elevation. Flammulated owls prefer older forests and are often found in association with old growth yellow pine forests mixed with red fir, aspen, white fir, and incense cedar (McCallum 1994). White-headed woodpeckers occupy similar habitat and are often found in forested stands with large diameter trees and dense canopy cover. Both species require large diameter snags with cavities for nesting and roosting. The biggest threat to flammulated owls and white-headed woodpeckers is loss of habitat from human and natural disturbances (i.e., tree harvesting, thinning, pest management, wildfires etc). Large scale snag removal for salvage, hazard tree removal, or for firewood is also considered a threat to these species.

PYGMY RABBIT

The pygmy rabbit has a discontinuous distribution occurring in Montana, Wyoming, Idaho, Utah, Nevada, California, Oregon, and Washington (Larrucea, 2007). Within the project area, pygmy rabbits are only known to occur in the Bodie Hills area on the Bridgeport Ranger District. The known and historical distribution of pygmy rabbits does not include the Carson Ranger District (Larrucea 2007). The elevation range of pygmy rabbits in Nevada extends from 4,494 to over 7,004 feet and in California from 4,986 to 5,298 feet Larrucea 2007).

The Pygmy rabbit is dependent upon dense stands of big sagebrush found in alluvial fans, swales in a rolling landscapes and large flat valleys or other landscape features where soil may have accumulated to greater depths (Larrucea 2007). Generally, pygmy rabbits burrow in loamy soils deeper than 20 inches. Soil composition needs to be able to support a burrow system with numerous entrances, but also must be soft enough for digging. Presence of other key wildlife species also is also generally negatively associated with pygmy rabbit presence. For example, a study in Nevada found that most often pygmy rabbits and cottontail rabbits did not coexist likely due to competition for burrows and the cottontail's preference for denser understory vegetation (Larrucea 2007). Pygmy rabbits are capable of reproduction the first year after birth and typically have up three litters per year. The Pygmy Rabbit breeding season is short compared to other rabbits and usually goes from March to May. Young are raised in nests inside burrows.

Pygmy rabbits are known to occur near the Bodie Hills on the Bridgeport Ranger District, although no detections have been recorded on HTNF lands. In general, the project area contains approximately 174,701 acres of big sagebrush habitat (CAIWMP Vegetation Report), all of which is not suitable for pygmy rabbits due to soil types and topography that is not conducive to pygmy rabbit presence. Within sagebrush stands, 80 acres (.05% of available sagebrush habitat) of noxious weeds are known to occur.

The loss and degradation of habitat through fire, grazing, invasion of non-native annual grasses, energy development, and agricultural conversion is the largest threat facing pygmy rabbit populations (Whisenant 1990; Knick and Rotenberry 1995, 1997).

SIERRA NEVADA RED FOX

The Sierra Nevada red fox (SNRF) was rediscovered in 2010 on the Bridgeport Ranger District near Sonora Pass. Prior to 2010, this subspecies was thought to consist of less than two dozen individuals, restricted to the Lassen Peak region (Perrine et al. 2010). Since the original detection near Sonora Pass on the Bridgeport Ranger District, SNRF are now known to occur at high elevations (alpine and subalpine) on portions of the Carson Ranger District as well as the adjacent Stanislaus National Forest. Based on historical records, SNRF occur from approximately 3,900 to 11,800 feet in elevation (Grinnell 1937, Schempf and White 1977). However, most of the detections of SNRF recently found on the Bridgeport Ranger District were found at very high elevations (above 10,000 feet). The primary threat to SNRF is the potential for expansion of non-native lowland red foxes or coyotes into high elevation areas, resulting in increased competition and potential transmission of harmful diseases and potential inbreeding (Perrine et al 2010). Sub alpine and alpine habitats associated with SNRF are not conducive to large infestations of noxious weeds. Noxious and invasive weeds rarely occur in these environments and then only occur typically as isolated individual plants rather than large homogenous infestations. Currently no known or mapped locations of weeds above 8,000 feet occur in the Bridgeport area and only one mapped location

occurs between 7,000 and 8,000 feet (curly dock). However, changing climates and the potential for a large disturbance such as wildfire, could provide the conditions suitable for development of or expansion of small individual weed infestations.

BIGHORN SHEEP

Three sub-species of bighorn sheep are known to occur in northern and eastern Nevada as well as parts of California: Rocky Mountain (*Ovis canadensis canadensis*), desert (*Ovis canadensis nelson*); and Sierra Nevada bighorn sheep (*Ovis canadensis sierra*). The Sierra Nevada bighorn sheep population was listed as federally endangered in 2008. The other two subspecies of bighorn sheep were listed as Forest Service Sensitive in 2009, based on small population sizes, limited distribution and a decrease from historical population numbers. The project area does not contain any hunting units for bighorn sheep and therefore information on population numbers for this area were not available (CDFW 2017). Desert Bighorn sheep are known to occupy a relatively small area on the Bridgeport Ranger District primarily within the East Walker River watershed in the Sweetwater Mountain range (in Nevada). Exact population numbers are not known but approximately 60 sheep were observed in this area during annual surveys conducted by Nevada Department of Wildlife (NDOW) during 2016. According to NDOW, herds in this area appear to be doing well despite the small geographic area they occupy (NDOW 2017). Bighorn sheep are not known to occur on the Carson Ranger District. However, California bighorn sheep are known to occur north and east of Reno on adjacent non-Forest Service lands (NDOW 2017). Given the relative proximity of NFS lands to where bighorn are known to occur, it is assumed that at least some individuals from herds that occur on adjacent lands occasionally traverse through and forage within the project area.

Bighorn sheep live in a variety of habitats including sagebrush habitat, pinyon-juniper woodlands, and mountain sagebrush with a grassy understory. Grasses provide a larger portion of their diet than shrubs and forbs (McQuivey 1978). Additional key elements to bighorn habitat are good visibility and steep escape cover that provide security from predators (Coates and Schemnitz 1994). In summer months, bighorn are often associated with water sources, but are able to range further in other seasons (McQuivey 1978). Specific ranges for bighorn sheep are not known within the project area. Using mapped sagebrush and pinyon juniper woodlands as a proxy for available habitat, there is an assumed 228,379 acres of potential bighorn sheep habitat in the project area. Of this area, approximately 100 acres or 0.04% of the habitat is infested with noxious weeds.

Disease transmission from domestic sheep or goats is considered to be one of the greatest threats to bighorn sheep. Disease transmission can kill large numbers of bighorn sheep with devastating consequences, particularly for smaller, isolated herds (Martin et al 1996).

TOWNSEND'S WESTERN BIG-EARED BATS AND SPOTTED BATS

The western big-eared bat occurs throughout the west and is distributed from the southern portion of British Columbia south along the Pacific Coast to central Mexico. Currently, the spotted bat is known to maintain a very patchy distribution across large areas of western North America; the patchy distribution is likely due to their dependence on large, isolated rocky cliffs for roosting (Luce and Keinath 2007). Within the project area, Townsend big-eared bats are known to roost on the Carson Ranger District near the Colorado Hill Mine in Alpine County, CA and Chemung Mine on the Bridgeport Ranger District. Both mining districts are currently closed to mining and have been inactive for numerous years. Roosting locations for the spotted bat on either district are not known.

Townsend's big-eared bats are found in a variety of habitat types including desert, native prairies, coniferous forests, mid-elevation mixed conifer, and riparian communities and are strongly correlated with the availability of caves and cave-like roosting habitat- primarily caves, mines, and tunnels and also basal hollows in large diameter trees (Piaggio 2005). Abandon mines serve as primary roosting habitat for Townsend's big-eared bats (Brown et al 2002). Spotted bats also utilize a variety of habitat types including ponderosa pine, pinyon-juniper forests, desert scrub, and open pasture and hay fields (Leonard and Fenton 1983). However, rather than caves, spotted bats typically depend on rock cliff faces for roosting. Both species are insectivores, specializing primarily in moths. Townsend's big-eared bats are known to forage between .3 and 6.4 km (.18 to 3.2 miles) from roosting sites (Bradley et al 1996). Spotted bats also forage over long distances (Woodsworth et al. 1981). The primary threats to Townsend's big-eared bats include habitat loss and mortality from mine closures and repeated disturbance from humans (Piaggio 2005). Spotted bats are also sensitive to human disturbance, particularly near roosting areas.

Noxious weeds do not occur within the immediate vicinity of the known roost sites. However, infestations of bull thistle occur within .25 miles of the Colorado Hill Mine site where Townsend big-eared bats could potentially forage.

C. Management Indicator Species (MIS)

(*The northern goshawk and sage grouse are Forest Sensitive species as well as MIS. These species are analyzed in the Biological Evaluation and summarized in the Forest Sensitive Species section of this document. Lahontan and Paiute cutthroat trout are Federally listed species as well as MIS and are analyzed in the Biological Assessment (summarized under Federally Listed species*).

Table 6. Management Indicator Species with potential to occur in the project area (Toiyabe LRMP 1986).

Species	Status/Trend	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
Yellow-rumped warbler (*Setophaga coronate*)	MIS G5 CA-SNR NV-S5	Mixed conifer forest	CRD BRD	CRD/BRD	Widespread and common throughout project area
Yellow warbler (*Setophaga petechial*)	MIS G5 CA-S3S4 NV-S3S4B	Riparian habitat; willows mixed scrub	CRD BRD	CRD BRD	Some declines documented in California but considered stable within the project area.
Hairy woodpecker (*Leuconotopicus villosus*)	MIS G5 CA-SNR NV-S4	Mixed conifer with a substantial snag component	CRD BRD	CRD BRD	Widespread and common throughout the project area
Williamson's sapsucker *(Sphyrapicus thyroideus)*	MIS G5 CA-SNR NV-S2	Conifer and aspen habitats	CRD BRD	CRD BRD	Uncommon resident but known to breed along the Carson Range and western portions of the Great Basin
Mule deer (*Odocoileus hemionus*)	MIS G5 CA-SNR NV-S5	Mixed conifer, shrub, meadows	CRD BRD	CRD BRD	The project area is occupied by three main deer herds, the Loyalton-Truckee, the Carson River and the West Walker.

Species	Status/Trend	Habitat	Habitat Present	Known to Occur w/in Project Area	Comments
American marten (*Martes americanas*)	MIS G5 IUCN: Species of Least Concern	Late seral conifer	CRD BRD	CRD	Numerous detections of marten are recorded within the project area on the CRD
Macroinvertbrates	MIS	Perennial streams and rivers	CRD BRD	CRD BRD	Approximately 977 miles of perennial streams and rivers occur within the project area.

YELLOW-RUMPED WARBLER

Range, Distribution, and Status: Yellow-rumped warblers are common and widespread throughout the United States (Cornell 2017). According to USGS Breeding Bird Survey data, yellow-rumped warbler populations in the Sierra Nevada are common and widespread, and populations are generally considered stable (Sauer et al 2017). Partners in Flight estimates a global breeding population of 130 million with 58% spending some part of the year in the U.S., 71% in Canada, and 31% wintering in Mexico (PIF 2017). The species is not a watch list species or species of concern on the Continental Concern Score or on the 2016 State of North America's Birds' Watch List (Ibid).

Habitat Requirements and Life History: The yellow-rumped warbler is considered highly adaptable and can be found in a variety of habitats including coniferous forest, mixed woodlands, deciduous forest, pine plantations, bogs, forest edges, and openings (Cornell 2012). Yellow-rumped warblers put their nests on the horizontal branch of a conifer, anywhere from 4 to about 50 feet high. Yellow-rumped warblers are primarily insectivores but also depend on berries in the winter.

Potential for Occurrence: Yellow-rumped warblers can occur throughout the project area within and near conifer forests. Migratory bird surveys conducted on the Carson Ranger District over the past 10 years have resulted in several detections of yellow-rumped warblers. Within the project area there is approximately 178,262 acres of mixed conifer habitat (including eastside pine, lodgepole, subalpine conifer, Sierran mixed conifer, white fir) (CAIWMP Vegetation Report). Of these acres, approximately 252 acres, or 0.14%, have some level of noxious weed infestations, most of which occur in the sagebrush dominated areas of mapped eastside pine habitat and are not considered high quality habitat for yellow-rumped warblers.

Threats: Threats to yellow-rumped warblers include those that reduce availability or quality of conifer habitat such as logging, wildfire, or large scale insect outbreaks.

YELLOW WARBLER

Range, Distribution and Status: Yellow warblers breed in the Sierra Nevada and are uncommon to common summer residents on the Toiyabe National Forest. According to USGS Breeding Bird Survey information, population trends of yellow warblers in the Sierra Nevada have decreased between 1966 and 2015 (Sauer et al 2017). However, local populations on the eastern slope of the Sierra Nevada, including Mono County, appear to be relatively stable (Shuford and Gardali 2008). Partners in Flight estimates a

global breeding population of approximately 98 million (PIF 2017). The species is not a watch list species or species of concern on the Continental Concern Score or on the 2016 State of North America's Birds' Watch List (Ibid).

Habitat Requirements and Life History: Yellow warblers are closely tied to riparian habitats that contain willow, alder, and elderberry components. Although yellow warblers can be found in mixed conifer habitat, they are usually migrants (not breeders) associated with riparian areas found at the edge of conifer stands and or conifer stands that contain substantial amounts of brush (Green 2010). Yellow warblers are long-distance migrants, leaving their breeding grounds in midsummer to winter in southern Mexico and Central America (Birdweb 2012). Yellow warblers arrive in their breeding range in late spring (April/May) and migrate to winter range starting as early as July or as soon as the young are fledged.

Potential for Occurrence: Suitable habitat for yellow warblers occurs throughout the project area where riparian vegetation is present. According to the California Integrated Weed Management Vegetation Report prepared for this EA, approximately 6,856 acres of montane riparian habitat is present within the project area of which 11 acres are known to be infested with noxious weeds (0.16%). Annual migratory bird surveys have been conducted on the Carson Ranger District between 2008 and 2014 including several riparian areas located in the project area in Alpine County and Sierra County. Surveys resulted in at least three detections of yellow warblers. Surveys were conducted following the Great Basin Bird Observatory protocol for point count surveys (GBBO 2003). Gaines (1992) considered yellow warblers "common" summer residents in the eastern Sierra, Mono County (Bridgeport Ranger District), where surveys conducted between 1998 and 2000 found them at 121 (54%) of 224 riparian stations along 12 streams (Heath and Ballard 2003, Heath et al 2004).

Threats: Habitat destruction and brown-headed cowbird parasitism are the biggest threats to yellow warblers (Shuford and Gardali 2008).

WOODPECKER SPECIES

There are two woodpecker species that are listed as Management Indicator Species on the Humboldt-Toiyabe National forest, hairy woodpecker and Williamson's sapsucker. Because of overlapping habitat requirements and life history effects analysis for both species will be combined below.

Hairy Woodpecker

Range, Distribution, and Status: Hairy woodpeckers are associated with deciduous and coniferous woodlands found throughout North America (Ryser 1985). The USGS Breeding Bird survey reports population trends of hairy woodpeckers in the Sierra Nevada have been stable from 1966 to 2015 (Sauer et al., 2017).

Habitat Requirements and Life History: In the Sierra Nevada, hairy woodpeckers nest in low to moderate canopy closure (< 70%) containing trees with a minimum diameter of 25 cm and minimum height of 4.6 meters (Sousa 1987). The hairy woodpecker requires cavities for nesting and foraging and feeds primarily on wood boring insects and insect larvae. Hairy woodpeckers are considered opportunistic foragers and will feed from a variety of substrates including snags and downed logs (Sousa 1987).

Williamson's Sapsucker

Range, Distribution, and Status: Uncommon to fairly common, summer resident in the Sierra Nevada (The USGS Breeding Bird survey reports population trends of Williamson's sapsuckers in the Sierra Nevada have been stable from 1966 to 2015 (Sauer et al., 2017).

Habitat Requirements and Life History: Williamson's sapsucker breeds at middle to high elevations, generally from 4,900–10,500 feet in montane mixed deciduous-coniferous forest with quaking aspen. Availability of dead trees or live trees with heartwood rot is a critical component of breeding habitat. Sapsuckers forage by drilling holes in tree trunks, and then coming back to those holes later to feed on the running sap and the insects attracted to that sap. Williamson's Sapsucker nests are located in fairly large snags (1 – 2.5 ft in diameter) (GBBO 2010). If large snags are preserved, the species appears to be fairly tolerant of habitat disturbances and may even respond to forest fires with population increases, if additional large snags are created in the process and at least some live trees remain for forage (Ibid).

Potential for Occurrence: Suitable habitat for hairy woodpeckers and Williamson's sapsuckers occurs throughout the project area where conifer and aspen stands are present. According to habitat analysis conducted for the vegetation report for this project, approximately 178,262 acres of mixed conifer (eastside pine, lodgepole, Sierran conifer, white fir) and 17,053 acres of aspen occurs in the project area. Of these acres, noxious weed infestations are known to occur on approximately 252 acres or approximately 0.2% of the available mixed conifer habitat and on 0.8 acres of aspen habitat. Migratory bird surveys conducted on the Carson Ranger District between 2008 and 2014 in mixed conifer and aspen habitat resulted in several detections of Hairy woodpeckers and no detections of Williamson's sapsuckers in the project area. Occurrence data is not available for the Bridgeport Ranger District

Threats: Threats to hairy woodpeckers and Williamson's sapsuckers include loss of habitat from activities such as logging that remove large diameter trees and snags (Siegel and DeSante 1999).

MULE DEER

Range, Distribution and Status: The project area is occupied by three main deer herds, the Loyalton-Truckee, the Carson River and the West Walker.

The Loyalton-Truckee herd is a bi-state herd that traverses between California and Nevada within the northern portions of the project area (the Carson Range along the California border from Peavine Mountain south to Highway 50 near Carson City). This herd has endured substantial declines over the last decade largely due to loss of habitat from urban development, wildfires, and increased recreation (NDOW 2011). Although the current population of approximately 1700 animals appears to be stable, the long term outlook is continued decline due to ongoing development within wintering habitat in the Reno and Carson City area (NDOW 2017).

The Carson River herd is also a bi-state herd whose range encompasses much of Alpine, Mono and El Dorado County in California and portions of Douglas County in Nevada. Deer in this area generally move to the higher elevations near the Sierra Crest in May and will remain until the first heavy snowfall begins to force them down below the snowline in the lower elevations of the eastern Sierra front (CDFW 2017). According to NDOW, populations are currently considered stable due to good recruitment levels (NDOW 2017). However, long term trends have shown a continued population decline in the past several

decades. Populations have declined from approximately 5000 deer in 1978 to 1000 currently (Cox 2008). The reasons for this decline include habitat changes due to rapid urban development in Nevada, predation, road kill and other common mortality factors (Weist 2014).

The West Walker herd includes three sub herds that occur within the project area: the Mono Lake, East Walker and West Walker Deer Herds. These herds spend summers at higher elevations (7,500-11,000 feet) in the Sierra Nevada and winters at lower elevations (5,000-7,500 feet) in both the northeastern portion of Mono County considered to be stable to slightly decreasing, and considerably below levels seen in the late 1960's and 1970's (CDFW 2017). Currently the East and West Walker mule deer herds are experiencing a reduction in population trend and are considerable below levels seen in the late 1960's and 1970' (CDFW 2017). Consistent drought has plagued this herd resulting in low recruitment rates. Trend data suggests that this herd could be exhibiting a density-dependent response due to limited resources.

Habitat Requirements and Life History: Habitat requirements for mule deer vary throughout the year. Mule deer generally summer at higher elevations and transition to lower woodlands or shrublands in winter to find food, avoid predators, and seek cover from harsh weather. Habitat types for mule deer are generally categorized as critical summer, winter, and fawning ranges as well as transitional ranges. Range for mule deer is generally considered "critical" when habitat components meet or exceed the biological requirements necessary to sustain a viable population of mule deer. Critical winter range is generally concentrated at lower elevations where relatively snow-free brush fields provide easy access to forage and cover in the winter. Transitional ranges provide mule deer with necessary cover and forage to allow movement between winter and summer habitats. Transitional ranges are often found mid-slope and include important forage and cover species for mule deer such as bitterbrush, sagebrush, mountain mahogany, and aspen. Summer habitat is found in the higher elevation sites that are characterized by montane forests, aspen, and mountain shrub plant communities. This habitat provides protection for does and their young during the fawning period.

Mule deer typically begin fawning between May through July, although timing may vary somewhat depending on both environmental conditions and geographic location. Fawning occurs primarily in areas that offer protective cover, such as moderately dense shrublands and forest, dense shrub thickets, or high-elevation riparian and mountain shrub habitats that offer both access to water and abundant nutritious spring forage.

Potential for Occurrence: The wide range of elevation zones and vegetation types found on the Carson and Bridgeport Ranger Districts provides summer, transition, and critical winter habitat for mule deer. On the Carson Ranger District, much of the winter range occurs on the lower eastern slopes of the Sierra Nevada in the Reno area, as well as along the Truckee River Corridor. The Carson River herd, depending on the winter, winters in the lower slopes of Alpine County or further east in the Pine Nut mountains. The Bridgeport herds winter primarily on the east side of the District, at the lower elevations of the Sweetwater Mountains and along the East fork of the Walker River. Portions of Monitor Pass, as well as the higher elevations in the Carson Iceberg Wilderness are considered to be suitable fawning habitat as well (Ibid).

Threats: Loss of habitat from urban development, wildfire, and other habitat disturbances are the largest threat to mule deer populations within the project area (NDOW 2017, Weist 2014). Type conversion of rangelands to cheatgrass and other noxious and invasive species following wildfires has increasingly been

responsible for loss of mule deer habitat. In particular, the conversion of critical winter range to cheatgrass and other noxious weeds is considered a major threat to mule deer populations in the State of Nevada (Wasley 2004)

AMERICAN MARTEN

Range, Distribution, and Status: Marten occur from the southern Rockies in New Mexico northward to Canada and Alaska, and from the southern Sierra Nevada eastward to Newfoundland in Canada. In California, the marten was historically distributed throughout the Sierra Nevada, California Cascades, and the Coast ranges, from the Oregon border southward to Sonoma County. Martens are currently distributed throughout the Sierra Nevada and Cascades. The species' core elevation range is from 5,500 to 10,000 feet, and they are most often found in the Sierra Nevada above 7,200 feet. Marten are listed as a Species of Special Concern in California and is a Management Indicator Species on the Humboldt-Toiyabe National Forest.

Habitat Requirements and Life History: Habitat requirements for marten overlap considerably with other late-seral species such as northern goshawk and flammulated owl. Preferred denning and resting habitat for martens is characterized by dense (60 to 100% canopy), multi storied, multi species late seral coniferous forests with a high number of large (> 24 inch dbh) snags and downed logs (Freel 1991). These areas are generally in close proximity to both dense riparian corridors (used as travelways), and include an interspersion of small (<1 acre) openings with good ground cover (Ibid). Marten use rest sites daily and therefore availability of these sites in suitable habitat is critical to their well-being (Martin and Barrett 1991). Marten prey items vary seasonally feeding primarily on ground squirrels and chipmunks during spring through fall and squirrels, mice, and snowshoe hares in the winter (Zielinski et al. 1983).

Potential for Occurrence: Potential habitat for marten occurs throughout the project area where denser stands of mixed conifer are present. Within the project area there is approximately 178,262 acres of mixed conifer habitat (including eastside pine, lodgepole, subalpine conifer, Sierran mixed conifer, white fir) (CAIWMP Vegetation Report) that could potentially provide habitat for marten. Of these acres, approximately 252 acres, or 0.14%, have some level of noxious weed infestations. On the Carson Ranger District, surveys for forest carnivores, including marten, have been conducted in select locations throughout the district since 1999. Within the project area, survey cameras have been placed in the Dog Valley and Long Valley area of Sierra County and also in several locations in Alpine County California. To date, detections from these survey efforts have only been recorded in the Hope Valley and Monitor Pass areas of Alpine County. The detections were of individual marten and no denning areas have been discovered. High quality habitat for marten occurs on the Bridgeport Ranger District as well, particularly on the western portion of the district in and near the Hoover Wilderness.

Threats: Timber harvest is one of the largest threats to American marten. Distribution and demographic rates of marten are affected by the loss of closed-canopy forest that can result from intense logging operations. Studies conducted between 2007 and 2008 in the Sierra Nevada suggest there may be as much as a 60% decline in local marten populations due largely to logging (Moriarty et al 2011). Alterations to marten habitat are their greatest threat and may even promote local extinctions (Lacy and Clark 1993).

MACROINVERTEBRATES

Macroinvertebrates are aquatic animals without backbones that live on the bottom of freshwater habitats during all or part of their life cycle and that are large enough to be seen with the naked eye. Major groups of benthic macroinvertebrates include arthropods, mollusks, sponges, and nematode worms. The most abundant are typically immature life stages (larvae) of terrestrial insects such as mayflies, caddisflies, and stoneflies. The benthic macroinvertebrate community or "assemblage" is largely determined by the range of habitat conditions, such as water quality, vegetation structure and bottom substrate. More complex habitats generally support a more diverse assemblage taxa than more uniform habitats. Benthic macroinvertebrates are an important biological resource for several reasons: biodiversity value, food web support, and they are indicators of ecological health. Since benthic macroinvertebrates have diverse microhabitat requirements and ecological functions, they exhibit a wide range of responses to ecological changes and stressors, thus making them valuable indicators of water quality. Because of their abundance and role in the aquatic food chain, benthic macroinvertebrates (insects in particular) are an important source of food for birds, mammals, amphibians, reptiles, fish and other invertebrates (Erman 1996).

Within the project area, approximately .175 acres of noxious weeds occur within 100 feet of 977 miles of perennial streams and approximately 5.7 acres of noxious weeds occur within 100 feet of a lake or pond. All of these freshwater systems likely contain macroinvertebrates at varying density levels. Inventory of macroinvertebrates within the project area has only been conducted within the Silver King Creek watershed in the Carson Iceberg Wilderness as part of the Paiute Cutthroat Trout Recovery project (USDI 2014). No rare or endemic taxa species were detected during sampling efforts (Ibid).

D. Other Species Considered

SIERRA NEVADA WILLOW FLYCATCHER

Range, Distribution, and Status: Two subspecies of the willow flycatcher are found in the Sierra Nevada, the little willow flycatcher (*E.t. brewsterii*) and the Great Basin flycatcher (*E.t. adastus*). The willow flycatcher is listed as a California State endangered species and a Region 5 Forest Sensitive Species and Sierra Nevada Framework Species at risk (USDA 2001 FEIS-Chapter 3, pp147-150). Sierra Nevada willow flycatcher populations within the Sierra Nevada bioregion are declining (Mathewson et al 2012, Loffland et al 2014). The reasons for the decline are not completely clear but maybe attributed to changing climate conditions affecting the length of breeding seasons as well as a declining conditions of meadows systems (Ibid). Within the project area within the West Carson River Watershed Recently a 19% annual decline in willow flycatchers was recently reported (Loffland et al 2014).

Habitat Requirements and Life History: The willow flycatcher is a migratory bird wintering in tropical areas from south Mexico to South America (Ibid). Willow flycatchers typically breed between elevations of 4,000 feet and 8,000 feet, although nesting has been known to occur as high as 9,500 feet. Habitat for this sub-species of willow flycatchers typically include wet meadows larger than 10 acres with perennial streams and smaller spring fed or boggy areas with willow or alders (Green et al 2003). In the Sierra Nevada, the presence of standing water and abundant willows during the breeding season appears to be an important habitat component (Fowler et al 1991). Willow flycatchers have also been found in riparian habitats of various types and sizes ranging from small lakes or ponds surrounded by willows with a fringe of meadow or grassland. Compared to other passerines nesting in Sierran meadows, willow flycatchers

arrive late in the breeding season. In the northern Sierra Nevada, nesting usually begins in late June and ends in early September when most territories are vacated (Green et al 2003).

Potential for Occurrence: Within the project area, historic nesting areas for willow flycatchers occur in at least six locations on the Carson Ranger District (all in Alpine County) and two on the Bridgeport Ranger District. Active nesting currently only occurs at one of these territories.

Threats: The largest threats to willow flycatcher are nest parasitism from brown-headed cowbirds and habitat loss and degradation from cattle grazing (Green et al. 2003).

NEOTROPICAL MIGRATORY BIRDS

The migratory songbirds found in North America include roughly 350 species, of which about 250 are known as "neotropical migrants". Migratory birds spend their winters in the tropics of southern Mexico, Central and South America, and the West Indies (Finch 1991). Migratory songbirds can be found in virtually every habitat on the continent, and usually half or more of the breeding birds in any sampled area are migratory.

Executive Order (EO) 13186, signed January 10, 2001, requires federal agencies to protect migratory birds by supporting the conservation intent of the Migratory Bird Treaty Act. Under this Order, Federal agencies must integrate bird conservation principles, measures, and practices, into agency planning and activities. Agencies should also, to the extent practicable, avoid or minimize adverse impacts on migratory bird resources when conducting agency actions. A Memorandum of Understanding (MOU) between the USDA Forest Service and the USDI Fish and Wildlife Service, signed January 17, 2001 identified specific activities for bird conservation pursuant to EO 13186 including: 1) the need to identify management practices that impact populations of high priority migratory bird species and 2) to develop management objectives or recommendations that minimize these impacts. In 2008, an additional Memorandum of Understanding between the USDA Forest Service and the USDI Fish and Wildlife Service to Promote the Conservation of Migratory Birds was signed. The intent of this MOU is to strengthen migratory bird conservation through enhanced collaboration and cooperation between the Forest Service and the Fish and Wildlife Service as well as other federal, state, tribal and local governments. Within the National Forests, conservation of migratory birds focuses on providing a diversity of habitat conditions at multiple spatial scales and ensuring that bird conservation is addressed when planning for land management activities.

The two largest threats to NTMB are habitat fragmentation on breeding grounds and deforestation of wintering habitat (Finch 1991). Compared to other birds, migratory species are the most negatively affected by fragmentation, and are usually absent from small or highly isolated forests (SERC 2003). The distribution and diversity of birds is highly associated with structural diversity in vegetation . Species such as yellow warbler, MacGillivray's warbler, Wilson's warbler, and common yellowthroat are considered high priority species and require heavy shrub or herbaceous cover for nesting and foraging (Sedgwick and Knopf 1987).

Human disturbance can also have an effect on songbirds. Birds may habituate to predictable disturbances such as driving, or hiking, but disturbance during certain times of the year may have an impact on bird behavior (Marzluff 1997). For example, repeated intrusions during the nesting season may cause birds to minimize or stop singing, decrease defensive behavior at nests, and possibly cause birds to abandon nest

sites leading to an overall decline in nesting productivity (Knight and Tempel 1986). Along the Eastern Sierra, the critical breeding season is generally between March 1st and August 30th (Heath and Ballard 1999).

A wide variety of habitat types occur within the project area hosting a similarly wide array of migratory and resident birds. Of these habitat types, aspen-riparian is considered the "highest priority" habitat for Neotropical Migratory birds (NTMB) in the 1999 Draft Avian Conservation Plan for the Sierra Nevada Bioregion (Siegel and DeSante 1999). Aspen-meadow riparian habitats support an extremely rich and abundant avian community that includes several species of conservation concern, such as the song sparrow and red-breasted Sapsucker (RJHV 2004). Other habitats in the project area, including late successional forest and sagebrush (upland shrub), are also ranked as high priority and support species such as brown creeper and golden-crowned kinglet and sage sparrow and western meadowlark, respectively (CalPIF 2002, 2005). Of the habitats listed as high priority, aspen-meadow riparian and sagebrush are the most vulnerable to noxious and invasive weed infestations. Although not listed as a high priority habitat for the Sierra Nevada Bioregion, pinyon/juniper plant communities, which provide essential habitat for bird species such as the pinyon jay and juniper titmouse, are also considered vulnerable to invasive species. Pinyon juniper and sagebrush plant communities, particularity at lower elevations (below 5,000 feet) are highly vulnerable to cheatgrass and other annual invasive grass conversion following a major disturbance such as wildfire. Noxious weeds such as bull thistle, Canada thistle, and perennial pepperweed tend to infest more mesic sites associated with aspen and riparian corridors.

According to the California Integrated Weed Management Vegetation Report, the project area contains approximately 40,261 acres of aspen, riparian and meadow habitat, 174,701 acres of sagebrush, and 53,678 acres of pinyon juniper habitat. Mapped infestations in these habitat types are currently relatively small with only 161 acres infested in riparian (0.4 %), 80 acres in sagebrush (.05%) and 20 acres in pinyon juniper (.037%) (mapped infestations do not include annual grasses such as cheatgrass and medusahead.

A table of focal species associated with priority habitat types in the project area including trend information was calculated from the Breeding Bird Survey (BBS) and NatureServe global and state databases (see below Table 7). Although the BBS data provides some indication of regional population trends, the data includes varying level of precision depending on sample size, consistency of surveys etc. For example, Category 1 (very imprecise) reflects data where the regional abundance is very low, and the sample is based on very small sample size (<5 routes), and therefore the results are so imprecise that a 5%/year change would not be detected over the long-term. Category 2 (quite imprecise) reflects data where the regional abundance is low, the sample is based on less than 14 routes (small sample size), and the results are so imprecise that a 3% per year change would not be detected over the long-term. Category 3 (moderately precise) reflects data with at least 14 samples in the long term, of moderate precision, and of moderate abundance on routes (Sauer et al. 2017).

Table 7. Species associated with Priority habitat types (CalPIF 2002, 2005 and RHJV 2004) and habitats vulnerable to invasive weed infestations and current trend information (from 1966-2016) for the Sierra Nevada Bioregion and the

Great Basin. * Because of the proximity of Nevada and Great Basin habitats to the project area, data from these bioregions was used in some cases to provide a better sense of regional trend estimates- noted in **(-)** under State Rankings

Species- Common Name	Riparian/ Meadow/ Aspen	Pinyon/ Juniper	Sagebrush	BBS Regional Trend and Relative Precision Category	Global Ranking	CAState Ranking*
American robin	X	X		-1.65 decreasing (3)	G5	SNR (S5)*
Bank swallow	X			no information	G5	S2
Belted kingfisher	X			-2.8 decreasing (2)	G5	SNR
Black-headed grosbeak	X			0.08 stable (3)	G5	SNRB
Common poorwill		X		2.03 stable (1)	G5	SNR
Common yellowthroat	X			-1.22 stable (1)	G5	SNR (S3)*
Gray flycatcher		X		4.94 increasing (2)	G5	SNR
Green-tailed towhee		X	X	-0.06 stable (3)	G5	SNRB
House wren	X			2.83 stable (3)	G5	SNR
Juniper titmouse		X	X	7.43 increasing (2)*	G5	SNR
Lark Sparrow			X	1.60 stable (2)	G5	S4S5
Lazuli bunting	X			4.72 increasing (3)	G5	SNRB
Lincoln's sparrow	X			0.71 stable (2)	G5	SNRB
Loggerhead shrike			X	0.66 stable (3)*	G4	S4
Northern rough-winged swallow	X			-0.92 stable (2)	G5	SNR
Orange-crowned warbler	X			.074 stable (3)	G5	SNR(S4)*
Pinyon jay		X		-3.57 decreasing (3)*	G5	SNR(S3S4)*
Red-breasted sapsucker	X			-0.29 stable (3)	G5	S4(S3)*
Sagebrush sparrow			X	1.43 stable (1)*	G5	SNR(S4BS4N)*
Sage thrasher			X	-1.26 decreasing (3)	G4	SNR

IX. ENVIRONMENTAL CONSEQUENCES

A. ALTERNATIVE 1- NO ACTION ALTERNATIVE

Under the No Action Alternative, control and/or eradication of noxious and invasive weeds would not occur on HTNF lands that occur in California. Prevention measures, inventory, and monitoring would continue. While prevention measures will help slow the spread of invasive plants, prevention alone is insufficient to address the spread of existing infestations. Invasive plant treatments associated with existing NEPA decisions (Table 1) would continue to occur but new or additional efforts would not be implemented.

Under the no action alternative there would be no risk of direct impacts, such as disturbance, to any aquatic and terrestrial wildlife species from treatment activities including manual, herbicide application, biological control, mechanical, or prescribed burning. Invasive plant treatments associated with existing NEPA decisions (Table 1) would continue to occur but new or additional efforts would not be implemented. Under Alternative 2 (Proposed Action-analyzed below) direct impacts to wildlife species include disturbance associated with treatment activities. Disturbance could lead to short term displacement, and disruption of foraging and breeding activities. Under all circumstances, however, disturbance from weed treatment activities would be temporary and not impact the viability of wildlife populations. Indirect effects from project activities were determined to be beneficial to all wildlife species due to the removal of noxious and invasive weeds within important habitat for those species.

The indirect effects of Alternative 1 include those associated with the continued persistence and spread of invasive plant species within wildlife habitat. Under Alternative 1, existing invasive species within and adjacent to unique and important plant communities are expected to continue to threaten native vegetation. Meadow and riparian areas would continue to be impacted by known invasive species, except where existing decisions already allow for limited treatment of invasive species which may slightly reduce the potential for impacts to these habitats.

Of particular concern under Alternative 1 is the continued spread of cheatgrass and medusahead within the East Carson River Watershed. This area is important habitat for mule deer and much if it is also within the Bi-State sage grouse Pine Nut PMU. Loss of habitat from wildfire and conversion to invasive grasses is considered to be one of the greatest threats to sage grouse in the Pine Nut PMU. Invasive grasses, in particular medusahead infestations, also becoming more prominent in the northern part of the project area (Dog Valley) which includes important summer and winter ranges for mule deer. Loss of habitat from type conversion to invasive species is considered to be one of the greatest threats to local mule deer populations. Untreated invasive grass infestations can easily spread in the wake of a large disturbance such as wildfire and result in massive monocultures that hold little to no value for wildlife species.

Existing infestations of musk thistle, spotted knapweed, perennial pepperweed, bull thistle, whitetop, Canada thistle, cheatgrass and medusahead would be partially controlled using clipping and hand pulling methods within the project areas listed in Table 1. However, hand pulling is not always effective or feasible for some species that occur in large scattered populations (such as medusahead and cheatgrass) or for perennial species with creeping root systems (perennial pepperweed, Canada thistle); therefore, many of these infestations have the potential to increase under Alternative 1.

In the absence of an integrated weed management approach, it is expected that native vegetation would be displaced further as these infestations continue to spread. Many of the known infestations would remain

untreated, or would be treated with limited efficacy (i.e. reduce seed production but not eradicating the infestation). Cheatgrass and medusahead, in the absence of the Proposed Action, would continue to degrade native plant communities where they occur at high densities. The larger infestations of cheatgrass and medusahead would likely go untreated and continue to spread, further displacing the native vegetation and acting as seed sources for invasion into uninfested areas. The lack of effective control measures for treating these priority infestations would likely result in the continued spread of invasive species and the increased loss of habitat for wildlife species such as bighorn sheep, mule deer, and sage grouse.

1. Federally Threatened and Endangered Species

LAHONTAN CUTTHROAT TROUT, PAIUTE CUTTHROAT TROUT, SIERRA NEVADA YELLOW-LEGGED FROG, YOSEMITE TOAD, SIERRA NEVADA BIGHORN SHEEP

Current weed infestations within habitat for Threatened and Endangered species in the project area are small (less than 3.5 acres) or non-existent. Of the five species that occur in the project area, habitat for Lahontan cutthroat trout (LCT) may be the most vulnerable to expansion of weed infestations. Lahontan cutthroat trout occur in a variety of elevations and plant community types, including in sagebrush ecosystems which can be prone to invasive grass infestations following wildfire.

Paiute Cutthroat Trout, Sierra Nevada Yellow-Legged Frog, Yosemite Toad, and Sierra Nevada Bighorn Sheep all occur in high elevation and or remote settings which reduces the risk of noxious weed infestations. However climate change is leading to drier conditions in alpine and subalpine habitats making them more vulnerable to wildfire and noxious weed infestations. Without the ability to deploy EDRR in response to new infestations in these areas, large scale disturbances such as wildfire can lead to expansion of weed infestations resulting in loss of habitat for threatened and endangered species.

Under the No Action Alternative, the above listed species would not be impacted from disturbance, including temporary displacement, disruptions to foraging, and potential trampling from weed treatment activities. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for these species

Determination: The No Action alternative would affect but not adversely affect Lahontan Cutthroat Trout, Paiute Cutthroat Trout, Sierra Nevada Yellow-Legged Frog, Yosemite Toad, and Sierra Nevada Bighorn Sheep.

2. Forest Sensitive Species

Late Seral Conifer Associated Species

NORTHERN GOSHAWK, CALIFORNIA SPOTTED OWL, FLAMMULATED OWL, WHITE-HEADED WOODPECKER

Within the project area there are approximately 114,154 acres of Subalpine, Sierran mixed conifer, and eastside pine habitats that could provide potential habitat for late seral conifer species. Of these acres, approximately 251acres, or 0.2%, are known to have some level of weed infestations. Of the 21 mapped goshawk and spotted owl territories in the project area, only one has a noxious weed infestation totaling 0.9 acres.

Weed populations in this habitat type are relatively small and are not currently having a measureable impact on the availability or quality of habitat for these species. However, a large scale disturbance such as a wildfire could result in rapid expansion of noxious and invasive weeds in these areas. Infestations would affect these late seral conifer species indirectly by reducing habitat for prey populations including rodents and insects.

Under the No Action Alternative, late seral conifer wildlife species would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for these species

Determination: The No Action alternative may impact individual northern goshawks, California spotted owls, flammulated owls, and white-headed woodpeckers but would not result in a loss of viability or contribute to a trend towards Federal listing.

Sagebrush Associated Species

DPS BI-STATE SAGE GROUSE, PYGMY RABBIT, BIGHORN SHEEP

Within the project area there are approximately 174,701 acres of sagebrush of which approximately 80 acres or 0.05% of available sagebrush habitat, are infested with noxious weeds. Although this reflects a relatively low number of infestations, it does not necessarily account for all cheatgrass infestations which have not all been mapped within the project area.

Sagebrush ecosystems are vulnerable to type conversion of cheatgrass following large disturbance events such as wildfire. Loss of habitat from wildfire and conversion to invasive grasses is considered to be one of the greatest threats to Bi-State sage grouse in the Pine Nut PMU. In the absence of an integrated weed management approach, it is expected that native vegetation would be displaced further as these infestations continue to spread. Many of the known infestations would remain untreated, or would be treated with limited efficacy (i.e. reduce seed production but not eradicating the infestation).

Under the No Action Alternative, sagebrush associated wildlife species would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging and breeding activities in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for these species.

Determination: The No Action alternative may impact individual Bi-state sage grouse, pygmy rabbits, and bighorn sheep but would not result in a loss of viability or contribute to a trend towards Federal listing for these species.

MOUNTAIN QUAIL

Approximately 91,205 acres of habitat for mountain quail (mixed conifer and montane chaparral) habitat occur within the project area of which approximately 472 acres or 0.5% of the available mountain quail habitat currently has noxious weeds.

Similar to sagebrush habitat, montane chaparral is vulnerable to noxious weed infestations due to the high fire frequency associated with this habitat. Although weed populations in this area are currently small and isolated, a large disturbance such as wildfire could result in a rapid expansion of those populations.

Under the No Action Alternative, mountain quail would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging and breeding activities in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for this species

Determination: The No Action alternative may impact individual mountain quail but would not result in a loss of viability or contribute to a trend towards Federal listing for this species.

TOWNSEND BIG-EARED BATS, SPOTTED BATS

Townsend big eared bats and spotted bats typically roost in caves, mines or steep rocky cliffs that are not vulnerable to weed infestations. However, both species forage over large distances and rely on a wide variety habitats for capturing prey (insects).

Under the No Action alternative, bats could be indirectly affected by a loss of habitat for prey species. Large infestations of noxious and invasive weeds, particularly those that become monocultures such as cheatgrass and medusahead, lack biodiversity and do not promote the abundance and diversity of insects found in native plant communities.

Under the No Action alternative, no direct impacts to bats from treatment activities, such as disruptions to foraging opportunities would occur. Under the proposed action, bats may temporarily be unable to forage in certain areas following prescribed burns or other ground disturbing activities while vegetation is recovering.

Determination: The No Action alternative may impact individual Townsend big-eared bats and spotted bats but would not result in a loss of viability or contribute to a trend towards Federal listing.

SIERRA NEVADA RED FOX (SNRF)

Similar to the Sierra Nevada bighorn sheep and other sub-alpine species, habitat for the SNRF is typically not vulnerable to noxious weed infestations. Currently no known or mapped locations of weeds above 8,000 feet occur in the project area and only one mapped location occurs between 7,000 and 8,000 feet (curly dock). However, changing climates and the potential for a large disturbance such as wildfire, could provide the conditions suitable for development of or expansion of small individual weed infestations. Without the ability to deploy EDRR in response to new infestations in these areas, large scale disturbances such as wildfire can lead to expansion of weed infestations resulting in loss of habitat for the SNRF.

Under the No Action Alternative, SNRF would not be impacted from disturbance, including temporary displacement and disruptions to foraging from weed treatment activities. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for this species

Determination: The No Action alternative may impact individual SNRF but would not result in a loss of viability or contribute to a trend towards Federal listing for this species.

BALD EAGLE

Bald eagles would not be impacted under the No Action alternative. Currently there is only one nest within the project area. Bald eagles nest in large conifers at the edge of waterbodies and forage primarily on fish and carrion. Habitat for the bald eagle and its prey are generally not vulnerable to noxious weed infestations.

Determination: There would be **no impact** to bald eagles under the no action alternative.

PEREGRINE FALCON, GREAT GRAY OWL

The peregrine falcon and the great gray owl are currently not known to occur in the project area. Habitat for peregrine falcons, which nest on steep, rocky cliffs is not vulnerable to noxious weed infestations. Meadow habitat associated with great gray owls, however, can be vulnerable to noxious weeds such as musk and bull thistle and perennial pepperweed.

Although great gray owls currently are not known to occur on the HTNF, historic sightings from the area, and more recent reports of great gray owl expanding their range from Yosemite, indicate they could occur here in the future. Without the ability to apply EDRR to new detections found in meadow systems within the project area, habitat quality and the potential for great gray owls to colonize nesting areas in the future is decreased.

Determination: Because both the peregrine falcon and the great gray owl currently do not occur in the project area, there would be **no impact** to these species under the no action alternative.

3. Management Indicator Species and Other Species Considered

Mixed Conifer Associated Species

YELLOW-RUMPED WARBLER, HAIRY WOODPECKER, WILLIAMSON'S SAPSUCKER, AMERICAN MARTEN

Within the project area there are approximately 114,154 acres of Subalpine, Sierran mixed conifer, and eastside pine habitats that could provide potential habitat for conifer associated species. Of these acres, approximately 251acres, or 0.2%, are known to have some level of weed infestations.

Weed populations in this habitat type are relatively small and are not currently having a measureable impact on the availability or quality of habitat for these species. However, a large scale disturbance such as a wildfire could result in rapid expansion of noxious and invasive weeds in these areas. Infestations would indirectly affect these conifer associated species indirectly by reducing habitat for prey populations including rodents and insects.

Under the No Action Alternative, conifer associated wildlife species would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for these species

Determination: The No Action alternative may impact individual yellow-rumped warbler, hairy woodpecker, Williamson's sapsucker and American marten but would not alter the existing trend in the habitat, nor will it lead to a change in the distribution of these species across the Sierra Nevada bioregion.

Aquatic Habitat-Associated Species

YELLOW WARBLER, SIERRA NEVADA WILLOW FLYCATCHER, MACROINVERTBRATES

Habitats associated with aquatic systems are often vulnerable to noxious weed infestations. Currently within the project area there are approximately 6,856 acres of montane riparian habitat of which 11 acres are known to be infested with noxious weeds (0.16%). Because of the mesic characteristic associated with aquatic habitat they are both vulnerable to infestations but also less vulnerable to large scale disturbances such as wildfire that could potentially expand those populations. Under the No Action alternative, current weed infestation in aquatic habitats would likely remain isolated although new infestations could continue to occur. Weed prevention in these areas would be critical to minimize future spread from such activities as recreation and livestock grazing.

Under the No Action Alternative, aquatic habitat associated wildlife species would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which could eventually would reduce the availability and quality of habitat for these species.

Determination: The No Action alternative would not alter the existing trend in the habitat, nor will it lead to a change in the distribution of yellow warblers, Sierra Nevada willow flycatchers, and macroinvertebrates across the Sierra Nevada bioregion.

MULE DEER

Mule deer are widely adapted to a variety of habitat types and could potentially occur throughout the project area. Within the 693,721 acre project area, noxious weeds are known to occur on approximately 1,256 acres or 0.2% of the project area.

The availability of quality winter habitat can be a limiting factor to mule deer survival. Critical winter range for mule deer often overlaps with lower elevation sagebrush stands which are often the most vulnerable to type conversion of cheatgrass following large disturbance events such as wildfire. Loss of habitat from wildfire and conversion to invasive grasses is considered to be one of the greatest threats mule deer (Wasley 2004). According to habitat modeling conducted for this analysis, there are approximately 98 acres of mapped noxious and invasive weeds that occur within sagebrush stands below 6,000 feet elevation within the project area. These acres do not necessarily account for all of the cheatgrass and/or medusahead that may be present. In the absence of an integrated weed management approach, it is expected that native vegetation would be displaced further as these infestations continue to spread. Many of the known infestations would remain untreated, or would be treated with limited efficacy.

Under the No Action Alternative, mule deer would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging and breeding activities in treatment areas. However, habitat conditions would remain vulnerable to new and expanded

noxious weed populations which eventually would reduce the availability and quality of habitat for this species.

Determination: The No Action alternative could potentially alter the distribution of some mule deer herds to avoid monocultures of invasive species within their critical winter range. Affects to overall population trends would likely not be affected.

MIGRATORY BIRDS

In the absence of an integrated weed management approach, it is expected that in some habitat types, current infestations of noxious weeds would continue to displace native vegetation allowing those infestations to continue to spread. Many of the known infestations would remain untreated, or would be treated with limited efficacy (i.e. reduce seed production but not eradicating the infestation). Small, individual patches of noxious weeds likely have little to no effect on most migratory bird species. However, in the absence of the Proposed Action, there is an increased risk of monocultures of invasive species such as cheatgrass and medusahead. This particularly true in the sagebrush and pinyon juniper plant communities where disturbances such as wildfire can quickly result in type conversions to invasive species monocultures. The lack of biodiversity in these infestations would greatly limit their use by migratory birds such as the sage sparrow and or pinyon jay. Without effective control measures for treating these priority infestations, the result would likely be the continued spread of invasive species and the increased loss of habitat migratory birds.

Under the No Action Alternative, migratory birds would not be impacted from disturbance associated with weed treatment activities, including temporary displacement and disruptions to foraging and breeding activities in treatment areas. However, habitat conditions would remain vulnerable to new and expanded noxious weed populations which eventually would reduce the availability and quality of habitat for this species

The No Action alternative could potentially alter the distribution of some migratory bird populations to avoid monocultures of invasive species within their range. Because of the relatively small area that could be affected compared to the entire range of most migratory birds, overall population trends would likely not be affected.

B. ALTERNATIVE 2- PROPOSED ACTION

General Effects to Wildlife from Treatment Activities Associated with the Proposed Action

The Proposed Action has the potential to affect terrestrial wildlife through the following:

- Disturbance of individuals from noise or visual disturbance associated with treatments;
- Secondary effects upon habitat
- Toxicity from acute or chronic exposure to herbicides

Disturbance or Displacement

Under the proposed action, all of the treatment methods have the potential to cause some level of disturbance and or temporary displacement to wildlife. The most common treatment methods that will be used in the project area include manual (hand digging, pulling, clipping and bagging) herbicide application, and biological (insects and targeted grazing) treatments. In general, treatments using manual and herbicide methods will not exceed more than a few days and will be conducted by crews no larger than 4 individuals. Manual treatments generally include crews walking into a treatment site, carrying hand tools and no motorized equipment is involved. Herbicide treatments are also conducted by crews walking and carrying backpack sprayers but treatments can also include the use of motorized equipment such as one or two UTVs or spray trucks. Because manual techniques are slower than herbicide methods, the duration of disturbance, caused by the presence of people, may be longer in the treatment area but generally still no longer than a few days. The presence of crews during treatments may generate noise sufficient to flush birds from a nest or interfere with feeding of nestlings if conducted in proximity to nests. Other wildlife such as mule deer and bighorn sheep may avoid treatment areas while weed crews are in the area.

Biological treatments using targeted grazing have the potential to be the longest of the treatment methods. Depending on the level of infestation livestock could be in a treatment area for several weeks. The presence of livestock may deter some wildlife species particularly mule deer, from utilizing the area during the entire duration of the treatment. Other species such as birds and other mammals would likely only be disrupted for a day or two before adjusting to the presence of livestock and returning to the area. Targeted grazing using domestic sheep would not be used in areas where wild sheep are known to occur.

Other less used treatment methods under the proposed action including mowing and prescribed burning. Both of these activities have the potential to displace wildlife for longer periods of time while vegetation conditions recover. However, both of these techniques are generally only used when an infestation has become a contiguous monoculture of noxious and/or invasive weeds. Monocultures are comprised of single species, non-native plants that generally provide very little value to most wildlife species. Therefore, treatments in these areas would result in disturbance to very few wildlife species. Within the project area, the majority of weeds occur as small isolated patches and not contiguous infestations Therefore it is unlikely that mowing and or prescribed burning will be applied with any frequency.

Effects to nocturnal species analyzed in this report such as the flammulated owl and marten, will be minimal as weed crews would only be conducting treatments during the day. During the Annual Implementation Process, the District Weed Manager will coordinate with the District Wildlife Biologist to be made aware of any sensitive areas (such as active nest sites, rare amphibian breeding areas) so that disturbance can potentially be avoided during critical time periods.

Habitat Alteration

Invasive plant treatment methods described in the Proposed Action, can result in short term effects to habitat. Due to the small and patchy nature of most of invasive plant infestations on the HTNF however, the amount of cover lost would not have any measurable effect on wildlife populations. Where invasive plants occur in large, dense patches, treatments can temporarily create bare ground by reducing plant cover. The removal of invasive plants can, in the short-term, decrease the amount of vegetative cover available to wildlife. This could be particularly true in areas treated by prescribed burning where the goal

is to remove the majority of the vegetation within the infestation. While the vegetation is recovering, which could occur over a period of one to five years, the area would likely provide limited value to wildlife. However, removal of invasive plants generally increases the diversity of native herbaceous and shrub species within treated areas. For the most part, invasive plant treatments restore, rather than reduce, habitat available to wildlife and the successful control of invasive plant infestations provides long-term benefits by restoring and preventing further loss of native habitat.

Treatments using biological control agents such as targeted grazing and insects pose little risk to wildlife species or their habitat. In targeted grazing, the kind of animals and amount and duration of grazing are specifically designed to help control a particular species of plant while minimizing the impacts on perennial native vegetation that is needed to help reduce the likelihood of reinvasion by undesirable plant species. While some inadvertent consumption and/or trampling of native vegetation may occur during targeted grazing, the amount consumed is minimal due to the tightly controlled management of these livestock. Insects used to treat noxious weeds are host specific and would not impact native plant species. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Herbicide Toxicity

The use of herbicides has the potential to affect wildlife through acute or chronic exposure. The effects of herbicide use depend on the toxicity of the herbicide, the level of exposure to that herbicide, and the duration of that exposure. Risk assessments evaluate the potential effects to non-target plants, wildlife, human health, soils, and aquatic organisms from the herbicides considered for use within the project area. The Forest Service contracted with Syracuse Environmental Research Associates, Inc (SERA) to evaluate human health and ecological effects of herbicides using EPA studies and other peer-reviewed articles from the open scientific literature. Information from laboratory and field studies of herbicide toxicity, exposure, and environmental fate was used to estimate the risk of adverse effects to non-target terrestrial and aquatic organisms, humans, water, and soil. Table 6 identifies the risk assessments available by active ingredient; these may be accessed online at: http://www.fs.fed.us/foresthealth/pesticide/risk.shtml.

Table 6. Risk Assessments for herbicides analyzed

Herbicide (Active Ingredient)	Date Final	Risk Assessment Reference
Aminopyralid	June 8, 2007	SERA TR-052-04-04a
Chlorsulfuron	November 21, 2004	SERA TR 04-43-18-01c
Glyphosate	March 25, 2011	SERA TR-052-22-03b
Imazapyr	December 16, 2011	SERA TR-052-29-03a
Rimsulfuron	March 2014 (Created for BLM)	AECOM 2014-FS assessment under Development (rimsulfuron will not be used until the SERA report is completed)
Sulfometuron methyl	December 14, 2004	SERA TR 03-43-17-02c
Triclopyr: triethylamine salt (TEA)	May 24, 2011	SERA TR-052-25-03a

In addition to the analysis of potential hazards to wildlife from the active ingredients in the herbicides, SERA Risk Assessments evaluated available scientific studies of potential hazards of other substances associated with herbicide applications: impurities, metabolites, inert ingredients, and adjuvants. There is usually less toxicity data available for these substances (compared to the herbicide active ingredient) because they are not subject to the extensive testing that is required for the herbicide active ingredients.

Risk assessments are a qualitative evaluation of the probability that the use of an herbicide may pose a risk to human health or the environment (FSM 2150.5). The risk assessments contain:

- Hazard Characterization - What are the dangers inherent with the active ingredient?
- Exposure Assessment- Who could come into contact and how much?
- Dose Response Assessment - How much is too much?
- Risk Characterization - Indicates whether or not there is a plausible basis for concern.

The risk assessments considered worst-case scenarios including accidental exposures and application at maximum label rates. Although the risk assessments have limitations, they represent the best science available. The risk assessment methodologies and detailed analysis is incorporated into references of conclusions about herbicide toxicology in this document.

Herbicide Toxicology Terminology

The following terminology is used throughout this document to describe relative toxicity of herbicides proposed for use in the alternatives

Threshold of Concern: A level of exposure below which there is a low potential for adverse effects to an organism. Effects on wildlife and other organisms are considered insignificant and discountable when herbicide exposure is below the threshold of concern.

Hazard Quotient (HQ): A "toxicity threshold" was established for each herbicide to indicate the point below which adverse effects would not be expected for a variety of organisms (e.g. people, wildlife, fish). The predicted level of exposure from herbicide use is compared to the toxicity threshold and expressed in terms of a "hazard quotient (HQ)." The Hazard Quotient is the amount of herbicide or additives to which an organism may be exposed over a specified period, divided by that estimated daily exposure level at which no adverse health effects are likely to occur. An HQ less than or equal to one indicates an extremely low level of risk. Toxicity thresholds are based on extrapolated laboratory results and accepted scientific protocols. The probability of harmful effects increases with HQ.

Level of Concern (LOC): An estimate of exposure above which there may be adverse effects; in risk assessments this is defined as a HQ of more than one.

No Observable Adverse Effects Level (NOAEL)- Where research has shown no statistically significant effect when compared to animals not exposed to the chemical. Thus hazard quotients (HQ) of less than 1.0 indicate that the exposure poses little reason for concern. Hazard quotients greater than 1.0 pose concern for effects to wildlife.

Exposure Scenario: For each ecological risk assessment, a set of general exposure scenarios based on the low, typical, and maximum label rates of the herbicides are analyzed. For wildlife, exposure scenarios

included the animal being directly sprayed; ingestion of contaminated vegetation, prey species, or water; grooming activates; and indirect contact with contaminated vegetation.

The application rate and method influences the amount of herbicide to which an organism may be exposed. Analysis of effects to wildlife from herbicides and the associated surfactants or dyes proposed for use in this project, utilizes risk assessments based upon Human Health and Ecological Risk Assessment reports prepared by Syracuse Environmental Research Associates (SERA 2007, 2004a, 2011a 2011b, 2004b, 2011c) which utilize the best available science to describe the level of herbicide expected to be introduced, persist, and transport within the forest environment, and to evaluate the likelihood of adverse ecological effects. Only herbicides that have SERA risk assessments and approved Pesticide Use proposals are proposed in this action, with the exception of one chemical, rimsulfuron. The Forest Service is in the process of developing a Pesticide Use Proposal and risk assessment for rimsulfuron. Once a USFS Pesticide Use Proposal is completed, the HTNF will no longer use sulfometuron-methyl and will replace it with rimsulfuron for the treatment of annual grasses. Although there is no current SERA report for rimsulfuron, the, Bureau of Land Management (BLM) completed a similar risk assessment for this chemical in 2014 (AECOM 2014). The BLM uses similar application methods for similar treatments as the Forest Service, so for the purposes of this human health assessment, we considered the BLM risk assessment the best available science for rimsulfuron.

FS/SERA risk assessments use peer-reviewed articles from the open scientific literature and current EPA documents. The likelihood that an animal will experience adverse effects from an herbicide depends on: (1) toxicity of the chemical, (2) the amount of chemical to which an animal is exposed, (3) the amount of chemical actually received by the animal (dose), and (4) the inherent sensitivity of the animal to the chemical, all of which are evaluated in FS/SERA risk assessments. Most of the Risk Assessments do not provide specific information for specific species so wildlife species were placed into groups based on taxa type (e.g. bird, mammal), with similar body size and diet.

When enough data was available for a particular type of animal, an exposure scenario was developed, and a quantitative estimate of dose received by the animal type in the scenario was calculated as described in the SERA risk assessments. The quantitative estimates of dose were compared to available toxicity data to determine potential adverse impacts. Because of the uncertainty with regard to how accurately a surrogate species may represent other wildlife, the FS/SERA risk assessments use the most sensitive endpoint from the most sensitive species tested as the toxicity index for all wildlife. The estimated dose (from the scenarios) is divided by the "toxicity index" and the result is known as the Hazard Quotient. When the Hazard Quotient is less than 1.0, the dose is less than the toxicity index. Potential effects from doses calculated to be below the toxicity indices are discountable. When a calculated dose was greater than the toxicity index, there is a potential for adverse effects. This very protective approach constitutes a "worst-case" analysis for potential effects of herbicides.

Terrestrial animals might be exposed to any applied herbicide from direct spray, the ingestion of contaminated media (vegetation, prey species, or water), grooming activities, or indirect contact with contaminated vegetation, and these sources of exposure were considered in the risk assessments used for this analysis. As discussed above, the threshold of concern is the no observable adverse effect level (NOAEL), where research has shown no statistically significant effect when compared to animals not exposed to the chemical. Thus hazard quotients (HQ) of less than 1.0 indicate that the exposure poses little reason for concern. Hazard quotients greater than 1.0 pose concern for effects to wildlife. Risk

assessments show that the highest exposures for terrestrial vertebrates would occur after the consumption of contaminated vegetation or contaminated prey. Other routes of exposure, including direct spray, dermal contact with contaminated vegetation, ingestion of contaminated water, or the consumption of contaminated fish, lead to levels of exposure considerably below the level of concern for all species groups and all herbicides being considered in this project. Thus, the following discussion focuses on acute and chronic herbicide exposures resulting from ingestion or exposure to contaminated vegetation or prey, for the herbicides included in the Proposed Action.

Mammals: Review of exposure scenarios and risk characterizations for glyphosate, aminopyralid, imazapyr, chlorsulfuron, rimsulfuron, and sulfometuron-methyl, indicate that for both acute and chronic exposures, hazard quotients are below the threshold of concern, 1.0, in all exposure scenarios. The assessments included consideration of accidental acute exposure (from direct spray, or contamination following a spill), non-accidental acute exposures (from contaminated vegetation, water, or consumption of contaminated insects or small mammals), and from chronic/longer term exposures associated with consumption of contaminated vegetation, water, or fish). The weight of evidence from available studies suggests that no adverse effects to mammals are plausible using typical or worst-case exposure assumptions at application rates proposed in this project. Hazard quotients for all exposure scenarios, at both the central and upper range, are well below one (the level where potential effects from doses are considered discountable). This indicates there is a low level of concern that application of these herbicides in the California Integrated Weed Management project would adversely affect mammals.

Review of the risk characterization for triclopyr, however, indicates that HQs exceed the level of concern (HQ > 1) for exposures to mammals involving the consumption of contaminated vegetation. The HQs for mammals increase as body weight increases. While small mammals may consume more than larger animals, the higher sensitivity of larger mammals to triclopyr suggest they are at greater risk. The high hazard quotients particularly for large mammals under chronic exposure to contaminated vegetation, suggest the potential for adverse effects. The "worst case" exposure scenarios do not, however, account for factors such as timing and method of application, animal behavior and feeding strategies and/or implementation of project design criteria. When these factors are considered, it is evident that risk is overestimated for both the acute and chronic exposure scenarios relative to the Proposed Action.

Under the acute exposure scenario, the environmental risk model assumes that 100 percent of the animal's diet is made up of contaminated vegetation within a 24-hour period. Under the chronic exposure scenario, it is assumed that 30 percent of an animal's diet will come from treated vegetation over a 90-day period. Since treated plants will rapidly brown and die, they will not remain palatable or available as forage for more than about five to ten days following treatments, making the acute or the chronic scenario implausible. Furthermore, triclopyr would be used only on rare occasions to potentially treat salt cedar tamarisk, which currently occurs in the project area in very limited numbers as individual isolated shrubs. Herbicide treatments therefore would be conducted using targeted applications such as wick and wiping which would minimize potential drift and subsequent exposure to herbivorous mammals. For these reasons, the magnitude of risk for mammals consuming vegetation treated with triclopyr under the Proposed Action is considerably less than the risk characterization provided in the SERA risk assessments.

In addition, the quantitative risk characterization must be tempered by information from field applications of triclopyr. None of the available field studies of wildlife report adverse effects which might be

attributed to the toxicity of triclopyr. This may be because the upper bound HQs represent multiple worst case exposure assumptions that may not occur frequently in the field. Another likelihood is that many mammals, such as deer, are likely to avoid treated areas. If larger mammals avoid treated areas, the proportion of the contaminated diet could be much less than 100 percent and as the proportion of the diet that is contaminated decreases, the HQs will also decrease. Under the Proposed Action, triclopyr will only be used in limited situations, primarily to treat woody species such as salt cedar tamarisk (currently there are only a few known tamarisk plants within the project area). Triclopyr will be applied using direct application methods such as wick and wipe on individual plants or cut-stump application which will minimize the risk of non-target exposure and accidental drift.

Birds: Review of exposure scenarios and risk characterizations for glyphosate, aminopyralid, imazapyr, chlorsulfuron, rimsulfuron, and sulfometuron-methyl, indicate that there are no toxicity effects anticipated in birds. This was true for scenarios involving direct spray, consumption of contaminated vegetation, contaminated insects, or contaminated prey. For triclopyr, scenarios involving consumption of contaminated vegetation or contaminated insects by a small bird (10 g) resulted in HQs that exceeded one for both acute and chronic exposures at the central and upper bounds. As described for mammals, however, the limited use of triclopyr under the proposed action, minimizes the exposure of birds to vegetation or insects treated with triclopyr over any length of time. Birds are very unlikely to consume 100 percent of their diet in contaminated vegetation or insects over a 24 hour period, and the chronic exposure scenarios (30 percent of the diet over a 90- day period) would be even less plausible, since treated vegetation will brown and die. All exposure scenarios for a large bird, such as an eagle, are below the threshold of concern. Under the Proposed Action, triclopyr will only be used in limited situations, primarily to treat woody species such as salt cedar tamarisk (currently there are only a few known tamarisk plants within the project area). Triclopyr will be applied using direct application methods such as wick and wipe on individual plants or cut-stump application which will minimize the risk of non-target exposure and accidental drift.

Invertebrates: Review of exposure scenarios and risk characterizations for aminopyralid, imazapyr, chlorsulfuron, rimsulfuron, and sulfometuron-methyl indicate that adverse effects in invertebrates due to herbicide toxicity are unlikely. Based on available information there is no indication that adverse effects on terrestrial invertebrates would occur. As with mammals and birds, the risk characterization for terrestrial invertebrates is based on data covering very few species relative to the large number of terrestrial invertebrates that might be exposed to these chemicals.

The upper bound HQs for glyphosate reach or slightly exceed one (HQ=1.8) for terrestrial invertebrates consuming small insects or vegetation. This raises concerns that moderate to high application rates of glyphosate could have an adverse impact on some terrestrial invertebrates. (It should be noted that these risk quotients were based on the more toxic formulation of glyphosate that includes a surfactant; HQs were not calculated for the less toxic aquatic formulation of glyphosate being used in this project). The available field studies on terrestrial invertebrates do not, for the most part, reinforce a concern. Most field studies suggest that effects on terrestrial invertebrates will be minimal and secondary to changes in vegetation. Furthermore, under the proposed action, only the aquatic formulation of glyphosate will be used which does not have a premixed surfactant and is considered less toxic than non-aquatic formulations (USDA 1997, Folmar 1979). Glyphosate will not be used in an area larger than one contiguous acre, and will likely almost always be used to treat much smaller areas.

Similar to glyphosate, the upper bound HQs for triclopyr slightly exceed one (HQ=1.3) for terrestrial invertebrates consuming vegetation. For triclopyr, there is a reasonably extensive group of field studies indicating that effects on terrestrial invertebrates are most likely to be associated with changes in habitat and food availability rather than herbicide toxicity. The risk characterization for insects is therefore based primarily on the field studies rather than the HQs and does not indicate that adverse effects are likely. Similar to the risk characterization for mammals, only the dietary HQs approach a level of concern for terrestrial invertebrates. Under the Proposed Action, triclopyr will only be used in limited situations, primarily to treat woody species such as salt cedar tamarisk (currently there are only a few known tamarisk plants within the project area). Triclopyr will be applied using direct application methods such as wick and wipe on individual plants or cut-stump application which will minimize the risk of non-target exposure and accidental drift.

Aquatic Wildlife: When herbicides are used within and near aquatic habitats, they must contain a specific label that has been approved by the Federal Environmental Protection Agency (EPA) and the California Department of Pesticide Regulation (DPR) for aquatic use. These herbicides have different formulations than those used in upland plant communities and are considered safe to most aquatic organisms when label directions are followed. Only herbicides that have been approved for use in the state of California and have a label certifying that the chemical has been approved for use by the EPA and the DPR, would be used in the California Integrated Weed Management Project area. A full discussion of risk from individual herbicides to aquatic species are presented in the Biological Assessment for this project (USDA 2017)

A review of risk assessments for aquatic species shows that most of the concern for aquatic species is associated with exposures scenarios for an accidental spill. These scenarios were above a threshold of concern for hazards to aquatic plants and algae. Glyphosate was the only herbicide where an accidental spill scenario exceeded a threshold of concern for fish, amphibian, or invertebrate species. While the risk of accidental spill cannot be completely eliminated, Project design features (DF) preventing herbicide mixing and loading within 300 feet of water have been included in the Proposed Action, and will limit the potential for a spill to enter water and impact aquatic plants or algae. Additional DFs requiring a project spill plan and the use of spill kits further limit potential impacts to aquatic resources if a spill were to occur. Finally, it should be noted that SERA risk assessments are likely to overestimate hazards from a spill relative to activities in the Proposed Action. Under the proposed action, only the aquatic formulation of glyphosate will be used which does not have a premixed surfactant and is considered to be virtually non-toxic to aquatic organisms (USDA 1997, Folmar 1979). Glyphosate will not be used in an area larger than one contiguous acre, and will likely almost always be used to treat much smaller areas.

Hazard quotients for triclopyr and chlorsulfuron were also above a threshold of concern for either chronic or acute exposure scenarios relative to effects to algae or aquatic plants (Williams 2012). Reduction of algae or aquatic plants can indirectly impact food and cover resources for aquatic wildlife. For these herbicides aquatic buffers that exceed label requirements were established to avoid herbicide entry into aquatic habitats. These aquatic buffers, as well as design features preventing herbicide treatments during wet weather conditions and design features avoiding herbicide preparation within RCAs, are expected to prevent movement of herbicides into aquatic habitat through surface runoff. Additional layers of precaution have been applied where there are known occurrences of Endangered, Threatened or Sensitive aquatic species, as described in the following section.

Surfactants

The Proposed Action describes use of methylated seed oil, such as Hasten or Competitor, as a surfactant that may be used with any of the herbicides. Its primary ingredient is ethylated canola oil, which is considered food grade. Polyoxyethylene dialkylester and Sorbitan alkylethoxylate ester are other active ingredients (Bakke 2007). Two carcinogenic impurities are known to be in the surfactant: ethylene oxide and 1,4 dioxane. Manufacture labels recommend using 0.25-1% surfactant mixed with the herbicide. Other than ethylated canola oil, the chemicals in the surfactant have received very little study and scrutiny to determine what affect the chemicals may have. Overall the hasten/competitor surfactant appears to have a lower level of toxicity than the herbicides and is used in small quantity compared to the herbicide, and thus appears to have little concern for wildlife, except for the uncertainty concerning some of the chemicals and carcinogen effects of the impurities in hasten/competitor.

Adjuvants Highlight blue is the only adjuvant proposed for use. It is a colorant that makes the herbicide more visible during application. Actual ingredients are unknown but are identified as minimal risk inert ingredients or as inerts of unknown toxicity by the EPA (Bakke, 2007). Highlight blue is considered virtually non-toxic to humans, and there is no evidence indicating toxicity to wildlife.

DIRECT AND INDIRECT EFFECTS TO SPECIAL STATUS SPECIES

1. Threatened and Endangered Species

LAHONTAN AND PAIUTE CUTTHROAT TROUT (LCT AND PCT)

Current weed infestations within LCT and PCT habitat are minimal. Within the project area there are no known weed infestations within 300 feet of occupied PCT habitat and only approximately 3.3 acres of noxious weed infestations occur within 300 feet of occupied LCT habitat.

Under the Proposed Action, design features 19-25 will minimize potential effects to LCT and PCT.

Direct and Indirect Effects of Individual Treatment Methods:

Manual-Within LCT and PCT habitat, treatment methods for noxious weeds will almost always be limited to manual methods and will include hand pulling, digging, clipping and bagging techniques only. These methods will have no measureable effect on LCT, PCT or their habitat. Although some minor ground disturbance may be associated with hand pulling or digging, this disturbance would be minimal and would not lead to any negative long term effects to LCT or PCT. Although some minor ground disturbance may be associated with hand pulling or digging, this disturbance would be minimal and would not lead to any negative direct or indirect effects to LCT or PCT.

Herbicide-A detailed discussion of the herbicides proposed and their potential effects to aquatic species is provided in the California Integrated Weed Management Biological Assessment located in the project file. As mentioned above, every effort will be made to treat noxious weeds by hand within habitat for LCT and PCT. If herbicides are used, only dip & clip and/or wicking & wiping applications of aquatic formulation of Glyphosate or Imazapyr will be used within 50ft of occupied habitat. Because any herbicides used within 50 feet of LCT and PCT habitat will be applied directly to individual plants, there is minimal chance for accidental drift and thus bioaccumulation of these chemicals in the soil or water.

Mechanical- Under the Proposed Action, no mechanical treatments (mowing) will occur in PCT habitat and the need for mowing is expected to be minimal within LCT habitat. Mowing is generally only used to treat expansive monocultures of noxious and invasive weeds which currently do not exist in areas where LCT are present. Under the proposed action, all mowing activities would be kept at least 50 feet away from the stream channel. This buffer will reduce the risk of erosion and increased sediment from mowing activities.

Biological control- Biological controls (both targeted grazing and insects) are generally used only when large infestations have become well established and other control methods are not feasible. Under the Proposed Action, biological controls will not be used in PCT habitat and only in very limited situations in LCT habitat.

Targeted grazing: To minimize potential negative impacts to LCT such as streambank erosion and/or consumption of native riparian vegetation, targeted grazing will not be permitted within 50 feet of an occupied LCT stream channel. Weeds in these areas would be treated using other methods such as hand pulling and digging.

Insects: The release of biological controls pose very little risk to LCT or their habitat and can benefit LCT over the long-term by reducing noxious weed populations along riparian corridors and allowing for an increase in a robust and stable native plant community. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Prescribed Burning: Under the Proposed Action, prescribed burning will not occur within PCT habitat and therefore will have no effect on the species. Within LCT habitat, prescribed burning would not be conducted within 300 feet of occupied habitat. The 300 foot buffer will eliminate any potential effects to LCT and LCT habitat from prescribed burning that occurs outside of this corridor.

Cumulative Effects

LCT: The stocking of non-native fish caused the extirpation of Lahontan cutthroat trout from much of their native range. Not all stocking activities have been documented; and it is assumed that most perennial streams with adequate access were stocked at some time with non-native fish. Restoration efforts also have the potential to affect Lahontan cutthroat trout. Previous and potential future management efforts to protect and restore the Lahontan cutthroat trout primarily involve: 1) mechanical and chemical treatments to remove competing or hybridized fish, 2) transplants to restore fish populations in fishless waters, 3) land exchanges to secure essential habitat, 4) fishing closures, and 5) fish habitat restoration projects. Within the Walker River basin there is currently one active restoration project occurring on Silver Creek to mechanically remove non-native trout. This effort by the California Department of Fish and Wildlife (CDFW) has been occurring since 2010 and will continue into the future. Due to drought conditions in 2015, California Department of Fish and Wildlife conducted a fish rescue within the project area in By-Day Creek. All fish encountered were captured and moved to other existing populations. The current status of the remaining population in By-Day Creek is unknown.

PCT: In 2013, non-native fish were removed from Silver King Creek from Llewellyn Falls to Silver King Canyon. Rotenone chemical treatments were conducted once a year over a three year period and concluded in 2015. All non-native fish have now been removed from the native range of the Paiute cutthroat trout and Paiute cutthroat trout are beginning to repopulate their historic habitat by natural downstream drift. In 2017, Paiute cutthroat trout will be reintroduced into their historic range between Llewellyn Falls and Silver King Canyon, extending their existing habitat in the Carson-Iceberg by approximately 11 miles. The actions proposed for this project will have no measureable negative cumulative effects on LCT or PCT. Over the long term, the removal of non-native plants from riparian native plant communities will help maintain and preserve important habitat characteristics for LCT and PCT.

Determination

Based on the analysis conducted in the Biological Assessment (summarized above), it is determined that treatment methods associated with the California Integrated Weed Management Project, **may affect but are not likely to adversely affec**t the Lahontan and the Paiute cutthroat trout.

SIERRA NEVADA YELLOW-LEGGED FROG (SNYLF) AND YOSEMITE TOAD

Current weed infestations within SNYLF and YT habitat are minimal. Within the project area there are is only 0.98 acres of weed infestations within critical habitat for SNYLF and no known locations of weed infestations within YT critical habitat.

Design Features 16-21 incorporated into the proposed action will minimize effects to Sierra Nevada yellow-legged frogs and Yosemite toads and designated critical habitat from project activities:

Direct and Indirect Effects of Individual Treatment Methods:

Manual- Negative effects to SNYLFs or Yosemite toads from manual (hand) treatments will be minimal, short term (less than one day) and only affect individuals. Direct effects from manual methods to SNYLFs and Yosemite toads include flushing these species from riparian and meadow areas and potentially stepping on individuals during treatment activities. Under the proposed action, design features which includes avoiding treatments during the breeding period and moving individuals prior to treatment activities, would reduce the risk of potential disturbance and/or harm to SNYLFs and Yosemite toads.

Herbicide- Under the Proposed Action, when herbicides are necessary within SNYLF or Yosemite toad habitat, only direct application of herbicide (dip and clip, wick and wipe) will be used. This technique will reduce the amount of herbicide needed to treat noxious weeds, as well as reduce the potential for accidental drift to SNYLFs or Yosemite toads and other wildlife and plant species. Furthermore, only herbicides that have a registered aquatic label and are considered low toxicity to aquatic species will be used within SNYLF or Yosemite toad habitat (Habitat®, Rodeo®). Additionally, before any treatments occur, a qualified biologist will survey the area for SNYLFs or Yosemite toads. If individuals are found, they will be relocated to a safe location adjacent to the treatment area. In general, the design features associated with the proposed action will greatly reduce the potential for direct and indirect effects to SNYLFs Yosemite toads during herbicide treatments.

Mechanical, biological control and prescribed burn- Under the Proposed Action, mechanical, biological control and prescribed burn treatments will not occur in SNYLF or Yosemite toad occupied habitat, critical habitat or within potential breeding areas within identified suitable habitat.

Direct and Indirect Effects to Critical Habitat

As mentioned above, only manual methods and direct application of herbicides will be used within critical and occupied habitat for SNYLFs and Yosemite toads. Of most concern from herbicide application would be a significant reduction in vegetation that would impact habitat for these species. Design feature #32 limits any impacts to critical habitat by only allowing methods that target individual plants. In addition, design features #35 and #36, limit the amount of acreage treated within critical habitat which will also limit the reduction of vegetation needed for cover, foraging, prey resources, predator avoidance, and dispersal corridors.

Overall, any negative effects to critical habitat from treatment methods will be minor and short term and will not adversely modify habitat conditions for the SNYLF or Yosemite toad. In the long-term, actions to control non-native plants would benefit critical habitat for the SNYLF and the Yosemite toad by allowing native vegetation to recover and reducing the potential for future infestations to occur.

Cumulative Effects

Transmission of disease, especially Chytrid fungus, is probably the greatest threat to SNYLF populations. Currently it is believed that the Carson and Walker River drainages are currently positive for Chytrid. The introduction and persistence of non-native fish that have been stocked into historically fishless waters has led to a large decline in the available habitat for SNYLF. In the headwaters of the West Walker River drainage there is currently an ongoing non-native fish removal project for the restoration of fishless Sierra Nevada yellow-legged frog habitat. To date, three high mountain lakes are now considered fishless. California Department of Fish and Wildlife, along with the Humboldt-Toiyabe are currently working to remove fish from a fourth lake.

For the Yosemite toad, loss or alteration of suitable breeding habitat can reduce reproductive success, which may have a profound impact when population numbers are small. Past management and development activity has played a role in the degradation of meadow habitats within the Sierra Nevada. Human activities within these habitats include grazing, timber harvest, fuels management, recreation, and water development. Current grazing standards and guidelines associated with the Sierra Nevada Forest Plan Amendment provide protective measures for both the SNYLF and the Yosemite toad and have resulted in improvement of meadows, riparian areas and other important habitat for these species. Actions associated with of the California Integrated Weed Management project will not cumulatively result in any long term negative effects to SNYLF or Yosemite toad populations. Treatment of non-native plants within critical and occupied habitat will help improve and maintain habitat quality for the SNYLF and Yosemite toad over the long term.

Determination

Based on the analysis conducted in the Biological Assessment (summarized above), it is determined that project activities associated with the California Integrated Weed Management Project, **may affect and**

are likely to adversely affect the Sierra Nevada yellow-legged frog and the Yosemite toad but is not likely to adversely affect critical habitat for these species.

SIERRA NEVADA BIGHORN SHEEP

Currently there are no known occurrences of any noxious our invasive weeds that occur in occupied or unoccupied critical habitat for SNBS. Additionally, there are no known or mapped locations of weeds above 8,000 feet anywhere in the Bridgeport area and only one mapped location occurs between 7,000 and 8,000 feet (curly dock).

Design features 29-31 incorporated into the Proposed Action would minimize effects to SNBS from project activities.

Direct and Indirect Effects of Individual Treatment Methods:

Manual Methods: Direct effects to SNBS from manual treatment methods include disturbance to sheep from human activity during pulling and clipping activities. Sheep may flush from a treatment site and avoid the area while activities are occurring. To minimize disturbance to SNBS, no manual treatments would occur during the lambing period to avoid disturbing SNBS during this critical period. Outside of this time period, hand pulling activities would likely be accomplished in one day and usually by no more than two people. As mentioned above, any noxious weeds that may occur in the future within SNBS habitat would likely occur as isolated individual plants that could easily be hand pulled, and removed from the area. Manual treatments may need to be repeated annually but would continue to require minimal disturbance. Therefore, any effects to SNBS from manual weed treatments would be minimal and have no long term effects on the population.

Herbicide use: Under the proposed action there will be no measurable effect to SNBS or their designated critical habitat from the use of herbicides to treat noxious and invasive species. Herbicides would only be used in the rare instances in SNBS habitat when hand pulling was determined to not be effective and the threat of infestation of native plant communities was eminent. Design features including wick and wipe application of individual weeds will minimize the risk of exposure to SNBS if herbicides are determined to be necessary.

Mechanical, Biological Controls, and Prescribed burning: There will be no effect to SNBS from mechanical, biological controls or prescribed burning treatment methods because these methods will not be used within occupied or critical habitat for SNBS. Mechanical, biological, and prescribed burning methods are appropriate when treating large monocultures of invasive or noxious weed species which do not occur in the high elevation habitats associated with SNBS.

Direct and Indirect Effects to Critical Habitat

The project area includes approximately 4,239 acres of designated critical habitat for SNBS. Under the proposed action, any effects to critical habitat will be minimal and eventually be beneficial. In the rare event that noxious weeds are found within SNBS habitat, removing them as quickly and as swiftly as possible will help maintain native plant communities important to SNBS. Treatments will generally be conducted through hand pulling and possibly the use of a shovel to dig up rooted individual plants. This activity will result in some minor ground disturbance but will have no long term effect on soils and other native vegetation.

Cumulative Effects

Under the proposed action cumulative effects to SNBS will be minimal and ultimately beneficial. Disease transmission from domestic sheep or goats is considered to be one of the greatest threats to bighorn sheep as it can kill large numbers of bighorn sheep with devastating consequences, particularly for smaller, isolated herds. Implementation of the California Integrated Weed Management project will not add to any increased risk of SNBS sheep coming into contact with domestic sheep or goats. There is some potential for human disturbance associated with treatment efforts to cumulatively effect SNBS who in some locations are already subject to disturbance from human recreation. However, because the potential for noxious weeds to occur in SNBS sheep is considered very low, the need for weed treatments and thus potential human disturbance would also be low and would have no measureable effect on SNBS.

According to the 2007 Recovery Plan, there are no immediate threats to habitat for SNBS (USDI 2007). Almost all of the critical habitat is considered stable and intact due to the majority of it occurring within Public ownership (U.S. Forest Service, National Park Service and Bureau of Land Management). In addition, the relatively high elevation of the habitat limits the number of roads and other types of disturbance that might be associated with public lands at lower elevations. Under the proposed action, there are no activities that would add to or increase threats to critical habitat. As mentioned earlier, by locating and treating noxious weeds, native plant communities remain intact which is beneficial to maintaining high quality habitat for SNBS.

Determination

Based on the analysis conducted in the Biological Assessment (summarized above), it is determined that activities associated with the California Integrated Weed Management Project, **may affect but are not likely to adversely affect** Sierra Nevada bighorn sheep or their designated critical habitat.

NORTH AMERICAN WOLVERINE

The current distribution of wolverines does not include the project area or the state of California. Although a wolverine was detected on the Tahoe National Forest in 2008, this detection was believed to be an anomaly and not indicative of a larger population (USDI 2013). Forest Carnivore surveys, including for wolverines, have been ongoing in the Sierra Nevada for decades with no detections.

Although future recolonization of wolverines in California and the Sierra Nevada is possible, it is unlikely to occur during the duration of this project (ten years). Alterations to habitat connectivity from climate change, as well as other anthropomorphic disturbances (infrastructure development, recreation and land management practices) may limit how successful expansion into California may be.

Determination: Based on the above assessment, and the conclusion that wolverines do not occur in the project area and are not expected to occur in the project area within the next ten years, there will be **no effect** to wolverines from activities associated with the California Integrated Weed Management Project.

2. Forest Sensitive Species

NORTHERN GOSHAWK AND CALIFORNIA SPOTTED OWL

Under the proposed action, only minor and short term (less than one day) impacts to spotted owls and northern goshawks will occur. Late seral forest habitat types associated with spotted owls and northern goshawks are generally not conducive to large infestations of noxious and/or invasive weed species. Of the 15 goshawk and spotted owl PACS that occur within the project area, only one goshawk PACs and no spotted owl PACS have known occurrences of noxious weeds. This site include populations less than .10 acre and consist of scattered individual musk thistle plants.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Weed treatment occurring within goshawk and spotted owl PACs could result in some disturbance to roosting, foraging, or nesting goshawks or spotted owls. However, under the proposed action (Design Feature #29), treatment sites within active nesting areas would be avoided until after the critical nesting period for each species. Human disturbance to non-nesting spotted owls and goshawks from weed treatments may cause these species to be displaced or disrupt foraging activities. However, this disturbance would be temporary, lasting only the day (or less) and would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to spotted owls or northern goshawks from the use of herbicides. SERA risk assessments were reviewed and indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the Proposed Action that will result in a Hazard Quotient (HQ) above one for carnivorous birds, such as the spotted owl or goshawk. Herbicides and surfactants applied as described in the Proposed Action pose no risk to these species. Chronic exposures are also unlikely because spotted owl and goshawk prey are not known to prefer foraging on invasive plant species. This reduces the likelihood of chronic exposure since treatments are focused on the invasive plants and prey species are unlikely to consume these plants.

Biological Control Methods: It is unlikely biological controls would be used in the late seral mixed conifer habitat associated with northern goshawks and California spotted owls due to the relatively small occurrences of noxious weeds. However, a major disturbance such as wildfire may result in some localized expansions of noxious weeds where targeted grazing and or the use of biological control insects may be determined to be appropriate.

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of northern goshawks or spotted owls. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from disturbance associated with grazing. Overtime, any short term impacts to goshawks or spotted owls would be offset by overall improved habitat conditions for the species by reducing noxious weed populations.

Insects: If biological controls are determined to be an appropriate treatment method, there will be no measurable effects to these species or their habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by

APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small isolated noxious weed populations that occur in northern goshawk and spotted owl habitat within the project area, mechanical and prescribed burning treatments would likely not be used. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in late seral conifer stands. The occasional use of hand held string trimmers, which may be needed for denser patches of noxious weeds, may result in minor noise related disturbance to individual goshawks or spotted owl. However the disturbance would be short term (less than one day) and not cause any long term impacts to the species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring. Under the proposed action, active nesting territories would be avoided for treatment until after the critical breeding period for these species. Individual goshawks or spotted owls that may occur in areas adjacent to treatment sites may be temporarily impacted from disturbance associated with treatment equipment (vehicles, crews). Goshawks and/or spotted owls may be flushed from the site and avoid the area while treatments are occurring. Goshawks and spotted owls may also be vulnerable to impacts from heat and smoke associated with prescribed burns. However, because prescribed burns will not occur in active nesting territories and will be carried out as low intensity burns in small increments, direct impacts to goshawks and spotted owls will be minor and short term (one to two days)

There will be no negative impacts to habitat for goshawks or spotted owls under the proposed action. The treatment of these noxious and invasive weeds will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in goshawk and spotted owl habitat will help maintain quality habitat for these species.

Cumulative Impacts: For the purpose of this analysis, cumulative impacts include those that have the potential to impact or have impacted the Protected Activity Centers (PACS) within the project area in the past, present or foreseeable future. The largest threat to northern goshawks and California spotted owls is loss of late seral conifer habitat. Both of these species rely on densely forested stands that are composed of mixed age trees with multiple canopy layers. Along the Sierra front and particularly on the Carson Ranger District, fuels reduction projects in or near suitable habitat for spotted owls and goshawks has likely resulted in some disturbance to individual goshawks and owls, and in some areas resulted in a reduced availability of quality habitat. However, survey protocols and design features associated with these projects were incorporated to minimize direct and indirect impacts and to the species and provide protection for critical nesting and foraging habitat. Treatment of noxious weeds in habitat for goshawk and California spotted owl will over the long term help protect and maintain habitat quality for these species. Although current weed infestations in late seral conifer habitat type is rare, being quick to

eliminate and control weeds will assure that infestations do not get larger and that native plant communities are protected. If left untreated, a type conversion of native plants to non-native noxious weeds would over time potentially affect the foraging availability of the northern goshawk and California spotted owl by diminishing habitat quality for their prey.

Determination: Under the proposed action, there may be minor impacts to northern goshawks and California spotted owls due to disturbance to non-nesting owls or goshawks during treatment activities. If weed treatments are required within an active nesting territory, treatment activities will not occur until after the critical nesting period is over. Therefore, it is my determination that the proposed action **may impact individual northern goshawks and California spotted owls but will not result in a trend toward federal listing or a loss of viability.**

BI-STATE SAGE GROUSE

Currently noxious weeds are present within 274 acres of Bi-State sage grouse habitat (PMUs) within the project area. This accounts for approximately 0.4% of the total available acres of the PMUs within the project area.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Within sage grouse habitat, weed crews and their equipment could temporarily displace individual sage grouse while weed treatment efforts were being conducted. However, disturbance would be temporary, lasting only one to two days and would not occur within active nesting/lekking areas until after the critical disturbance period for sage grouse. Herbicide treatments will occur outside of the critical disturbance periods and only if other integrated pest management approaches are inadequate or infeasible (Weed-S-02 Greater Sage-grouse Bi-state DPS Forest Plan Amendment).

Herbicides and surfactants applied as described in the Proposed Action pose no risk to Bi-State sage grouse. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for granivorous birds such as the Bi-State sage grouse. Herbicides and surfactants applied as described in the proposed action pose no risk to these species. Because sage grouse habitat is highly vulnerable to annual grass invasions, particularly after a wildfire, applications of pre-emergent herbicides will likely be a common technique to treat the infestations. This could potentially include applications of pre-emergent herbicides such as imazapyr, aminopyralid, and sulfometuron methyl using boom sprayers from trucks and or UTVS which can be less selective in targeted species than direct application techniques. Shrubs and forbs are slightly more vulnerable to imazapyr, and sulfometuron methyl than aminopyralid. To minimize potential injury to sagebrush, those chemicals would be used primarily in monoculture infestations where few shrubs and other forbs are present. There are no acute or chronic exposure scenarios at application rates described in the Proposed Action that will result in a Hazard Quotient (HQ) above one for granivorous birds, such as the sage grouse.

There will be no long term negative impacts to sage grouse habitat under the proposed action from manual or herbicide treatments. From a habitat and forage perspective, sagebrush, forbs (especially those

in the composite family), and grasses are important to sage-grouse. Perennial grasses, once they are past the seedling stage, are largely tolerant of the herbicides such as imazapyr and sulfometuron methyl which are often used to control annual grasses. The use of pre-emergent herbicides to control annual grasses such as cheatgrass is recommended as a sage-grouse habitat management guideline (Connelly et al. 2000). Areas that are treated manually will likely revegetate within the same growing season or by the following year. Effects to non-target plant species from herbicides will be minimal due to the timing of the application (fall) and the species specific herbicides that will be used. Over the long term, control and eradication of invasive species such as cheatgrass in Bi-State sage grouse habitat will help maintain quality habitat for this species.

Biological Controls:

Targeted grazing: To be most effective in treating annual invasive grasses, targeted grazing would likely be conducted during green up which may, in some years, coincide with the lekking and/or nesting season for sage grouse. To minimize potential impacts to nesting sage grouse, any targeted grazing activities would be conducted after the critical disturbance period (May 15). In addition, early season targeted grazing activities would not occur in known lekking or nesting areas to avoid potential trampling or other disturbance to nest sites, eggs or sage grouse chicks. Targeted grazing outside of the nesting areas may still result in some disturbance and temporary displacement of individual sage grouse. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from trampling and other disturbance associated with grazing. Overtime, any short term impacts to sage grouse would be offset by overall improved habitat conditions for the species by reducing invasive grass species populations.

Insects: It is unlikely that insects would be used in sage grouse habitat for biological control purposes. Currently there is no known insect or pathogen that is effective in reducing cheatgrass infestations. Although other noxious weeds such as thistles can occasionally occur in some portions of sage grouse habitat, they typically occur in such small numbers that the use of insects would not be effective. If biological controls were used, they pose little threat to sage grouse habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning- Mechanical treatments (mowing) and prescribed burning would potentially be used where necessary as part of an integrated approach to treat dense monocultures of invasive species. In these areas, sage grouse would likely not be present because habitat conditions would be in a degraded state and no longer contain sagebrush and other native plant species important to sage grouse. In dense populations of invasive species, mowing and prescribed burning can reduce grass height and density and allow for more efficient applications of other weed treatment methods including herbicide, seeding, etc. Mowing and prescribed burning would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size.

Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring. To avoid disturbance and other potential impacts to nesting sage grouse, prescribed burning will not occur in lekking and breeding habitat areas and mowing will not occur during the lekking or breeding season for sage grouse. Individual sage grouse that may be present in areas adjacent to treatment sites could be temporarily impacted from smoke and disturbance associated with treatment equipment (vehicles, crews). Sage grouse may be flushed from the site and avoid the area while treatments are occurring. However, because mechanical treatments and prescribed burning would occur only rarely and under highly controlled circumstances, and in areas where sage grouse likely no longer occur, impacts from these treatments would be minor and impact individual sage grouse for a short period of time (one to two days) and not result in any long term impacts to the viability of a population. Mowing and prescribed burning applications would meet standard Weed S-01 under the Greater Sage-grouse Bi-state DPS Forest Plan Amendment as these treatment methods will only occur in areas dominated by dense patches of invasive species and will not occur in areas that are predominately comprised of native vegetation.

Some short term impacts to sage grouse habitat would result from prescribed burning treatments while native plant communities recover. Recovery period could take potentially up to five years for reestablishment of native grasses and re-sprouting of sagebrush. Over the long term, however, habitat conditions would be improved by removing non-native grasses and allowing for sagebrush stands to recover.

Cumulative Impacts: For the purpose of this analysis, cumulative impacts include those that have been identified in the Bi-State Conservation Plan as High Risk factors for sage grouse within the six PMUs (Bi-State Plan 2012) and DPS habitat. Impacts that are expected to occur within the next ten years within suitable habitat within the analysis area will be addressed. Ten years is assumed to be an adequate timeframe to gauge how stochastic or longer term events may be affecting population trends.
The Bi-State Conservation Plan identifies several risk factors as having either a "High" "Moderate" or "Low" potential for negatively affecting sage grouse within each of the PMUs. While each PMU has unique risk factors, some commonalities, including risk of wildfire, pinyon juniper encroachment and invasive species occur across several of the PMUs.

Within the last decade, wildfire has burned thousands of acres of Bi State sage grouse habitat within many of the PMUs. For example, important nesting habitat near the Mill Canyon Dry Lake Lek site in the Pine Nut PMU burned during the 2007 Adrian Fire. Adjacent to the project area and within the very south end of the PMU, the Larson Fire of 2007 and the 2008 Slinkard Fire burned almost 2,000 acres. The Bridgeport Spring Peak fire in 2013 burned nearly 12,000 acres of sage grouse habitat in the Mount Grant PMU. Cheatgrass and other invasives are present in some of these burned areas; however, post fire restoration efforts, such as seeding and active weed management have helped with native plant restoration. To reduce the threat of future high intensity fires, the BLM, the Forest Service and other local agencies have completed or are in the process of completing multiple fuels reduction projects and habitat restoration projects in or near important breeding habitat within the Pine Nut, Desert Creek, and Mount Grant PMUs (Bi-State Plan 2012. Under the proposed action, treatment of invasive species such as cheatgrass will also help reduce the fuel loading in sagebrush habitat as well as reduce the threat of

increased infestations following a wildfire. The effects from the proposed action would not incrementally result in negative impacts to the Bi-State sage grouse when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the above assessment it is my determination that some minor disturbance associated with treatment efforts **may impact** individual sage grouse, but will not lead to a trend toward federal listing or loss of viability.

MOUNTAIN QUAIL

Approximately 91,205 acres of mixed conifer and montane chaparral habitat occur within the project area (CAIWMP Vegetation Report). Within this habitat type, noxious weeds are known to occur on 472 acres or 0.5% of the available mountain quail habitat.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Noxious weeds found within habitat associated with mountain quail (high elevation chaparral /mixed conifer) typically occur as isolated plants within a small area. Therefore, weeds within this habitat type will generally be treated by hand pulling methods and herbicide. In some portions of the analysis area, the timing of weed treatments may overlap with the nesting season for mountain quail. Because of the secretive nature of nesting quail, some nest sites may be inadvertently disturbed during weed treatments causing displacement of individual quail. However, due to the low potential of infestations in mountain quail habitat, noxious weed treatments would happen infrequently and over a short period of time (less than one day). Mountain quail flushed from a foraging or a nesting site would readily return after the weed crews left the area. Because treatments would occur so infrequently and for a short period of time, no long term impacts to nesting and/or foraging success would occur.

SERA risk assessments were reviewed and indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for granivorous birds such as the mountain quail. Herbicides and surfactants applied as described in the proposed action pose no risk to these species. Chronic exposures are also unlikely because of the limited treatments that would ever occur in mountain quail habitat. Mountain quail are typically eat seeds and insects foraged from the ground. Noxious weeds in montane chaparral and mixed conifer tend are primarily individual thistles and other biannual and perennial flowering plant species that can be treated by direct application of herbicide or hand pulling, thereby reducing the potential for herbicide exposure and drift to ground vegetation.

There will be no negative impacts to habitat for mountain quail under the proposed action. The treatment of these isolated individual plants will be a negligible loss to existing habitat and will not impact any life requisites for this species. Over the long term, control and eradication of noxious weeds in mountain quail habitat will help maintain quality habitat for this species.

Biological Controls:

Targeted grazing: Although targeted grazing is generally applied to more contiguous monocultures of noxious weeds, individual weed infestations in this habitat type could potentially develop into much larger ones following a disturbance such as a wildlife. Targeted grazing may result in some disturbance and temporary displacement of individual mountain quail. Depending on the weed species, grazing may need to occur during the spring and early summer when mountain quail could potentially be nesting. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from trampling and other disturbance associated with grazing. Overtime, any short term impacts to mountain quail would be offset by overall improved habitat conditions for the species by reducing invasive grass species populations.

Insects: The release of biological controls pose very little risk to mountain quail or their habitat and can benefit quail over the long-term by reducing noxious weed populations allowing for an increase in a robust and stable native plant communities. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small potential for large contiguous noxious weed populations to occur in mountain quail habitat it is unlikely that mechanical and/or prescribed burning treatments would be proposed as a treatment method. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in the dense montane shrub habitats associated with mountain quail. The occasional use of hand held string trimmers, which may be needed for isolated patches of noxious weeds, may result in minor noise related disturbance to individual mountain quail. However the disturbance would be short term (less than one day) and not cause any long term impacts to this species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Impacts to mountain quail from prescribed burning could be greater in the spring when quail may be nesting. Locations of mountain quail nest sites in the project area are currently unknown and are very difficult to locate. However, it is unlikely quail would be nesting in prescribed burn treatment areas as these sites would be highly degraded from weed infestations and no longer suitable for mountain quail. Mountain quail present in areas adjacent to a treatment site might be impacted from the effects of smoke and heat. However, because prescribed burns will not occur in active nesting territories and will be carried out as low intensity burns in small increments, direct impacts to mountain quail will be minor and short term (one to two days). In areas where high quality habitat is adjacent to a treatment area, the wildlife

biologist may recommend during the Annual Implementation Process to postpone burn until after the critical breeding period for mountain quail.

There will be no negative impacts to habitat for mountain quail under the proposed action. The treatment of these noxious and invasive weeds will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in mountain quail habitat will help maintain quality habitat for these species.

Cumulative Impacts: For the purpose of this analysis, cumulative impacts include those that have the potential to impact or have impacted mountain quail habitat within the project area in the past, present or foreseeable future. Catastrophic wildfires within the project area has led to the loss of mountain quail habitat along the eastern front of the Sierra Nevada Mountain range. Due to drought conditions, many of the burned areas have struggled to recover and no longer provide forage or cover value for mountain quail. In order to restore habitat in these burned areas, the Forest Service, as well as other local governments and non-profit groups, have implemented several native plant restoration projects in order to improve habitat in these areas. For example, in 2007 the Forest Service planted several thousand Jeffrey pine and mahogany seedlings in the 2007 Hawken Fire on the Carson Ranger District. Implementation of the proposed action will continue to help improve habitat conditions for mountain quail by maintaining native plant communities through the control and/or elimination of non-native species from their habitat. The effects from the proposed action would not incrementally result in negative impacts to the mountain quail when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination the proposed action **may impact** individual mountain quail but will not lead to a trend toward federal listing or a loss of viability.

GREAT GRAY OWL

There has not been any recorded nesting activity for great gray owls in the project area and only a few incidental sightings have ever been recorded. Historic sightings of great gray owls were likely due to a migratory "irruptive" pattern that occurs in years when prey populations drop in historic breeding areas (Cheveau et al 2004). Due to the availability of potential habitat and known breeding occurrences on adjacent forests, great gray owls could eventually nest on the HTNF in the future. Currently there are no known noxious or invasive weeds within designated great gray owl PACs within the project area. Under the proposed action, treatment of new infestations of weeds in meadows and forested environments will help maintain native plant communities benefiting both great gray owls and their prey populations.

Determination: Based on the analysis conducted in the BE (summarized above), it is determined the proposed action will have **no impacts** on great gray owls and no further analysis will be conducted for this species.

BALD EAGLE

Within the project area there is one bald eagle nest which is located above 7,000 feet on the Bridgeport Ranger District. There are no known noxious weeds within 300 feet of this nest site. Three bald eagle nests occur on the Carson Ranger District but all are located on non-National Forest System Lands. Two of the nesting territories are adjacent to Forest Service lands; currently there are no mapped noxious weeds within 300 feet of either of these nests.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Potential impacts of invasive plant treatment methods on bald eagles include primarily disturbance that may occur during the nesting season. Bald eagles are sensitive to human disturbance during the period of time between January 1 and August 15, particularly within sight distance of nest sites. The direct effects from invasive plant treatment could include disturbance caused by noise, people and vehicles. Human and vehicle presence can disturb bald eagles during the breeding season, causing the birds to leave nests, or stay away from the nest long enough to have detrimental effects to eggs or young (USDI 1986). Under the Proposed Action, a Limited Operating Period based on the buffer guidelines provided in the National Bald Eagle Management Guidelines (USDI 2007) will be implemented to minimize any potential disturbance to nesting bald eagles from future treatments. Furthermore, given there is just one nest site within the project area (on NFS lands), located at high elevation, the likelihood of large weed infestations and thus the need for treatments, is considered to be very low.

Herbicide Toxicity SERA risk assessments and project worksheets have been reviewed. There are no acute or chronic exposure scenarios at application rates described in the Proposed Action that will result in a Hazard Quotient (HQ) above one for a large fish- eating bird such as the bald eagle. Herbicides and surfactants applied as described in the Proposed Action pose no risk to bald eagles.

Targeted grazing: It is unlikely targeted grazing would be necessary in habitat types associated with bald eagle nest sites. If applied, targeted grazing may result in some disturbance and temporary displacement of individual bald eagles. However, as with manual and herbicide treatment activities, an LOP following the National Bald Eagle Management Guidelines would be implemented to protect nesting bald eagles from disturbance. Furthermore, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit the amount of disturbance. Overtime, any short term impacts to mountain quail would be offset by overall improved habitat conditions for the species by reducing invasive grass species populations.

Insects: The release of biological controls pose no risk to bald eagles or their habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed burning: Mechanical treatments would not be used with the exception of the occasional use of hand held string trimmers, which may be needed for denser patches of noxious weeds. Noise from the trimmers may cause disturbance to bald eagles but the disturbance will be short and not cause any long term impacts to the species. Furthermore, under the proposed action, a LOP will be in place during the nesting season to protect bald eagles from disturbance.It is unlikely prescribed burning treatment methods would be proposed as a treatment method in habitat types associated with bald eagle nest sites. Prescribed burning may occur in more open habitats adjacent to bald eagle territories. Bald eagles may be exposed to some level of smoke from prescribed burning operations. However, prescribed burns would be conducted as low intensity burns, over small areas and therefore would result in reduced smoke output. Furthermore prescribed burns would generally last less than one day. If necessary an LOP would be implemented during the nesting season to minimize potential impacts to bald eagles from smoke and other disturbance.

Invasive plant treatments will not result in the alteration of bald eagle habitat including the potential removal of bald eagle nest or roost trees.

Determination: Based on the above assessment, it is my determination there may be minor impacts to bald eagles from temporary disturbance (less than one day) but disturbance will not occur during or in proximity to nesting bald eagles. Therefore, impacts will not lead to a trend toward federal listing or loss of viability of bald eagle populations.

PEREGRINE FALCON

Direct and Indirect Impacts

Peregrine falcons are not known to nest within the project area but could potentially forage within the project area, particularly on the Carson Ranger District where is a nest is known to occur approximately 10 miles north of the District boundary on the Lake Tahoe Basin Management Unit**.**

Under the proposed action there will be no impacts to the peregrine falcon from any of the treatment activities. None of the treatment activities proposed has the potential to limit or disrupt foraging opportunities as peregrines typically hunt their prey on the wing, diving at birds in the air from above and at high speeds. Prey species, which are primarily small birds, could occasionally be disturbed or temporarily displaced from treatment activities. However, this disturbance would be minor, and not contribute to any declining trends of bird populations or disrupt foraging opportunities for peregrine falcons. As discussed in the migratory bird section below, there will be no direct or indirect impact to migratory birds (potential prey for peregrine falcons) from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small birds. Under the Proposed Action, triclopyr will only be used in limited situations, primarily to treat woody species such as salt cedar tamarisk (currently there are only a few (3-4) known tamarisk plants within the project area). Triclopyr will be applied using direct application methods such as wick and wipe on individual plants or cut-stump application which will minimize the risk of non-target exposure and accidental drift. Other herbicides and surfactants applied as described in the Proposed Action pose no risk to prey for peregrine falcons such as migratory birds.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination there will be **no impacts** to peregrine falcons from the proposed action.

FLAMMULATED OWL AND WHITE-HEADED WOODPECKER

Within the project area there is approximately 114,154 acres of Subalpine, Sierran mixed conifer, and eastside pine habitats that could provide potential habitat for flammulated owls and white-headed woodpeckers (CAIWMP-Vegetation Report). Of these acres, approximately 251acres, or 0.2%, are known to have some level of weed infestations, most of which occur in the sagebrush dominated areas of mapped eastside pine habitat and are not considered high quality habitat for either the flammulated owl or white-headed woodpecker.

Direct and Indirect Impacts

Under the proposed action, only minor and short term (less than one day) impacts to flammulated owls and white-headed woodpeckers will occur. Late seral forest habitat types associated with these species are generally not conducive to large infestations of noxious and/or invasive weed species.

Manual and Herbicide Treatments: Noxious weed treatments occurring within flammulated owl and white headed woodpecker breeding habitat could result in some disturbance to roosting, foraging, or nesting activities. However, under the proposed action, treatment sites within active nesting areas would be avoided until after the critical nesting period for each species. Human disturbance to non-nesting flammulated owls and white-headed woodpeckers from weed treatments may cause these species to be displaced from a roosting site or disrupt foraging activities. However, this disturbance would be temporary, lasting only the day (or less) and would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to flammulated owls or white-headed woodpeckers from the use of herbicides. There are no acute or chronic exposure scenarios at application rates described in the Proposed Action that will result in a Hazard Quotient (HQ) above one for insectivorous birds, such as the flammulated owl or white-headed woodpecker. Herbicides and surfactants applied as described in the Proposed Action pose no risk to these species.

There will be no negative impacts to habitat for flammulated owls or white-headed woodpeckers under the proposed action. The treatment of these isolated individual plants will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in flammulated owl and white-headed woodpecker habitat will help maintain quality habitat for these species.

Biological Control Methods: It is unlikely biological controls would be used in habitat associated with flammulated owl and white-headed woodpecker given the relatively small occurrences of noxious weeds associated with late seral mixed conifer habitat. However, a major disturbance such as wildfire may result in some localized expansions of noxious weeds where targeted grazing and or the use of biological control insects may be determined to be appropriate.

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of flammulated owls and/or white-headed woodpeckers. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from disturbance associated with grazing. Overtime, any short term impacts to these flammulated owls and/or white-headed

woodpeckers would be offset by overall improved habitat conditions for the species by reducing noxious weed populations.

Insects: If biological controls are determined to be an appropriate treatment method, there will be no measurable effects to these species or their habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small isolated noxious weed populations that occur in flammulated owl and white headed woodpecker habitat within the project area, mechanical and prescribed burning treatments would likely not be used. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in late seral conifer stands associated with these species. The occasional use of hand held string trimmers, which may be needed for isolated patches of noxious weeds, may result in minor noise related disturbance to individual flammulated owls or white-headed woodpeckers. However the disturbance would be short term (less than one day) and not cause any long term impacts to the species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Impacts to flammulated owls and white-headed woodpeckers from prescribed burning could be greater in the spring when these species may be nesting. Several nest locations of flammulated owls are known to occur on the Carson Ranger District but locations of nest sites for white-headed woodpeckers are unknown. However, it is unlikely either species would be nesting in prescribed burn treatment areas as these sites would be highly degraded from weed infestations and likely no longer suitable for nesting. If nesting is suspected in a proposed treatment area, pre-treatment surveys would be conducted to check all trees with potential cavities within a proposed burn area and determine nesting status. If nesting is confirmed, treatments would be postponed until after the critical nesting period for these species. Flammulated owls and white-headed woodpeckers present in areas adjacent to a treatment site might be impacted from the effects of smoke and heat. However, because prescribed burns will not occur in active nesting territories and will be carried out as low intensity burns in small increments, direct impacts to these species will be minor and short term (one to two days). Additionally, individual flammulated owls and white-headed woodpeckers may be temporarily impacted from disturbance associated with treatment equipment (vehicles, crews) and flushed from the site and avoid the area while treatments are occurring. Again, this disturbance will be short term, lasting only as long as crews are in the area (one to two days) and will not result in any long term negative effects.

There will be no negative impacts to habitat for flammulated owls or white-headed woodpeckers under the proposed action. The treatment of these noxious and invasive weeds will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in flammulated owl and white-headed woodpecker habitat will help maintain quality habitat for these species.

Cumulative Impacts: For the purpose of this analysis, cumulative impacts include those that have the potential to impact or have impacted habitat for flammulated owls and white-headed woodpeckers within the project area in the past, present or foreseeable future. The largest threat to flammulated owls and white-headed woodpeckers is loss of late seral conifer habitat. Both of these species rely on densely forested stands that are composed of mixed age trees with multiple canopy layers. Along the Sierra front and particularly on the Carson Ranger District, fuels reduction projects in or near suitable habitat for flammulated owls and white-headed woodpeckers has likely resulted in some disturbance to individual species, and in some areas resulted in a reduced availability of quality habitat. However, survey protocols and design features associated with these projects were incorporated to minimize direct and indirect impacts and to the species and provide protection for critical nesting and foraging habitat. Treatment of noxious weeds in habitat for flammulated owl and the white-headed woodpecker will over the long term help protect and maintain habitat quality for these species. Although current weed infestations in late seral conifer habitat type is rare, being quick to eliminate and control weeds will assure that infestations do not get larger and that native plant communities are protected. If left untreated, a type conversion of native plants to non-native noxious weeds would over time potentially affect the foraging availability of the flammulated owl and the white-headed woodpecker by diminishing habitat quality for their prey. The effects from the proposed action would not incrementally result in negative impacts to the flammulated owl or the white-headed woodpecker when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: In summary, under the proposed action, there may be minor impacts to flammulated owls and white-headed woodpeckers due to disturbance associated with conducting weed treatments. Over the long term, control and eradication of noxious weeds in flammulated owl and white-headed woodpecker habitat will help maintain quality habitat for these species. Therefore, it is determined that the proposed action **may impact** individual flammulated owls and white-headed woodpeckers, but will not result in a trend toward federal listing or a loss of viability.

PYGMY RABBIT

Pygmy rabbits are known to occur near the Bodie Hills on the Bridgeport Ranger District, although no detections have been recorded on HTNF lands. Pygmy rabbit habitat has not been specifically modeled within the project area. Although there are additional habitat requirements associated with pygmy rabbit (such as soil type and depth, topography etc) they utilize big sagebrush habitats almost exclusively. Within the project area there are approximately 174,701 acres of big sagebrush habitat. Within sagebrush stands, 80 acres (0.05% of available sagebrush habitat) of noxious weeds are known to occur.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Weed treatments conducted by hand would involve weed crews digging individual plants or cutting and bagging flowering parts of weeds. Within pygmy rabbit habitat,

weed crews could temporarily displace individual pygmy rabbits while weed treatment efforts were being conducted. However, weed crews would generally only be in a given treatment area for a day and generally only a few hours; therefore there would be no long term impacts to pygmy rabbits. Herbicides and surfactants applied as described in the Proposed Action pose no risk to pygmy rabbits. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for small mammals such as the pygmy rabbit. Because pygmy rabbit habitat is highly vulnerable to annual grass invasions, particularly after a wildfire, applications of pre-emergent herbicides will likely be a common technique to treat the infestations. This could potentially include applications of pre-emergent herbicides such as imazapyr, aminopyralid, and sulfometuron methyl using boom sprayers from trucks and or UTVS which can be less selective in targeted species than direct application techniques. Shrubs and forbs are slightly more vulnerable to imazapyr, and sulfometuron methyl than aminopyralid. To minimize potential injury to sagebrush, those chemicals would be used primarily in monoculture infestations where few shrubs and other forbs are present.

There will be no long term negative impacts to pygmy rabbit habitat under the proposed action from manual or herbicide treatments. From a habitat and forage perspective, sagebrush, is critical to the pygmy rabbit. As mentioned above, herbicides will be carefully selected when conducting treatments near pygmy rabbit habitat to reduce the potential for inadvertent damage or mortality to sagebrush. Areas that are treated manually will likely revegetate within the same growing season or by the following year. Over the long term, control and eradication of invasive species such as cheatgrass in pygmy rabbit habitat will help maintain quality habitat for this species.

Biological Controls:

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of individual pygmy rabbits. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from trampling and other disturbance associated with grazing. Overtime, any short term impacts to pygmy rabbits would be offset by overall improved habitat conditions for the species by reducing invasive grass species populations.

Insects: It is unlikely that insects would be used in pygmy rabbit habitat for biological control purposes. Currently there is no known insect or pathogen that is effective in reducing cheatgrass infestations. Although other noxious weeds such as thistles can occasionally occur in some portions of pygmy rabbit habitat, they typically occur in such small numbers that the use of insects would not be effective. If biological controls are determined to be the appropriate treatment method, under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning- Mechanical treatments (mowing) and prescribed burning would potentially be used where necessary as part of an integrated approach to treat dense monocultures of invasive species. In these areas, pygmy rabbits would likely not be present because habitat conditions would be in a degraded state and no longer contain sagebrush and other native plant species important to pygmy rabbits. In dense populations of invasive species, mowing and prescribed burning can reduce grass height and density and allow for more efficient applications of other weed treatment methods including herbicide, seeding, etc. Mowing and prescribed burning would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Individual pygmy rabbits that may occur in areas adjacent to treatment sites may be temporarily impacted from disturbance associated with treatment equipment (vehicles, crews). Pygmy rabbits may be flushed from the site and avoid the area while treatments are occurring. Pygmy rabbits may also be vulnerable to impacts from heat and smoke associated with prescribed burns. Prescribed burns can occur in the spring or the fall depending on outcome objectives. Impacts could be greater in the spring when more kits may potentially be present. However, pygmy rabbits live and birth in deep burrows (almost two feet deep) which would help protect adults and young from the effects of fire. Furthermore, prescribed fires would be conducted as fast (one to several hours), low to moderate intensity burns in small (<20 acre) increments that would only pose moderate risk to pygmy rabbits. Because mechanical treatments and prescribed burning would occur only rarely and under highly controlled circumstances, and in areas where pygmy rabbits are not likely to occur, impacts from these treatments would be minor and impact individual pygmy r for a short period of time (one to two days) and not result in any long term impacts to pygmy rabbits.

Some short term impacts to pygmy rabbit habitat would result from prescribed burning treatments while native plant communities recover. Recovery period could take potentially up to five years for reestablishment of native grasses and re-sprouting of sagebrush. Over the long term, however habitat conditions would be improved by removing non-native grasses and allowing for sagebrush stands to recover.

Cumulative Impacts: Wildfires and invasion of non-native annual grasses are two of the largest threats to pygmy rabbits. Within the last decade, wildfire has burned thousands of acres of sagebrush habitat within and adjacent to the project area. Including the Spring Peak fire in 2013 which burned nearly 12,000 acres of primarily sagebrush habitat. Cheatgrass and other invasive species are present in some of these burned areas; however, post fire restoration efforts, such as seeding and active weed management have helped with native plant restoration. In 2015, a collaboration of agencies and volunteers planted several thousand sagebrush seedlings in the Spring Peak burn area to help restore sagebrush habitats. To reduce the threat of future high intensity fires, the BLM, the Forest Service and other local agencies have completed or are in the process of completing multiple fuels reduction projects and habitat restoration projects in or near important habitat sage grouse which could potentially benefit the pygmy rabbit as well (Bi-State Plan 2012). Under the proposed action, treatment of invasive species such as cheatgrass will

also help reduce the fuel loading in sagebrush habitat as well as reduce the threat of increased infestations following a wildfire. The effects from the proposed action would not incrementally result in negative impacts to pygmy rabbits when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination the proposed action **may impact** individual pygmy rabbits but will not lead to a trend toward federal listing or a loss of viability.

SIERRA NEVADA RED FOX

Under the proposed action, effects to SNRF from weed treatment methods would be minimal, have no long term negative effects, and eventually be beneficial.

Sierra Nevada red fox occur in sparsely vegetated plant communities located at high elevation areas (between 7,000 and 10,000 feet) that are typically not susceptible to noxious and invasive weed infestations. These environments tend to have low vegetation densities due to the granitic, rocky soil types, short growing season and other ecological factors. Noxious and invasive weeds rarely occur in these environments and then only occur typically as isolated individual plants rather than large homogenous infestations. Currently no known or mapped locations of weeds above 8,000 feet occur in the Carson or the Bridgeport area and only one mapped location occurs between 7,000 and 8,000 feet (curly dock).

Direct and Indirect Impacts

Manual and Herbicide Treatments: Direct effects to SNRF from manual and herbicide treatment methods include disturbance to foxes from human activity. Sierra Nevada red foxes may flush from a treatment site and avoid the area while activities are occurring. However, treatments would likely be accomplished in one day and usually by no more than two people and therefore would not result in any long term effects to SNRF.

Under the proposed action there will be no measurable effect to SNRF from the use of herbicides to treat noxious and invasive species. As mentioned above the potential for future populations of noxious and invasive weeds to occur in SNRF habitat is very low due to the high elevation and rocky soil types associated with the species. Any noxious weeds that may potentially occur in this area would likely be single, isolated plants that could most likely effectively be treated with hand pulling and bagging techniques. Herbicides would only be used in the rare instances when hand pulling was determined to not be effective and the threat of infestation of native plant communities was eminent. To minimize the potential for drift in SNRF occupied habitat, weeds would be individually treated using the wicking and wiping method or the dipping and clipping technique. Both of these methods result in herbicide being applied to the main stem of the weed and greatly reduces the amount of herbicide needed to treat noxious weeds as well as the potential for inadvertent drift to non-target species. These methods also reduce the potential for surface runoff and/or leaching of herbicides into the soil because herbicide applications would only be applied to the main stem of the plant and not to the soil surface. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a

Hazard Quotient (HQ) above one for large canids such as SNRF. HQs for a canid consuming small mammals contaminated by direct spray, is below one for all herbicides in the Proposed Action.

Manual and herbicide treatments will result in some minor ground disturbance but will have no long term effect on soils and other native vegetation important to SNRF.

Mechanical, Biological Controls, and Prescribed burning: There will be no effect to SNRF from mechanical, biological controls or prescribed burning treatment methods because these methods will not be used within occupied habitat for SNRF. Mechanical, biological, and prescribed burning methods are appropriate when treating large monocultures of invasive or noxious weed species which do not occur in the high elevation habitats associated with SNRF.

Cumulative Impacts: Current and foreseeable actions that potentially impact SNRF include ongoing activities such as public snowmobiling, recreational use of hiking trails, and military training activities at the Marine Mountain Warfare training facility. It is not known how these disturbances are currently impacting SNRF. However, given the minimal need for weed treatments to ever occur in SNRF habitat, the proposed project will not result in any measurable additional impacts from disturbance to the species or its habitat. Some minor, short term disturbance to foxes may occur during treatment activities but over the long term, maintaining native plant communities will benefit the Sierra Nevada red fox. The effects from the proposed action would not incrementally result in negative impacts to the Sierra Nevada red fox when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination the proposed action **may impact** individual Sierra Nevada red fox but will not lead to a trend toward federal listing or a loss of viability.

BIGHORN SHEEP

Specific occurrences of bighorn sheep are not known within the project area. Using mapped sagebrush and pinyon juniper woodlands as a coarse proxy for available habitat, there is an assumed 228,379 acres of potential bighorn sheep habitat in the project area. Of this area, approximately 100 acres or 0.04% of the habitat is infested with noxious weeds.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Within bighorn sheep habitat, weed crews and their equipment could temporarily displace individual sheep while weed treatment efforts were being conducted. However, disturbance would be temporary, lasting only one to two days. Herbicides and surfactants applied as described in the proposed action pose no risk to bighorn sheep. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for large mammals such as bighorn sheep. Herbicides and surfactants applied as described in the proposed action pose no risk to these species. Because bighorn sheep habitat is highly vulnerable to annual grass invasions, particularly after a wildfire, applications of pre-emergent herbicides will likely be a common technique to treat the infestations. This could potentially include applications of pre-emergent

herbicides such as imazapyr, aminopyralid, and sulfometuron methyl using boom sprayers from trucks and or UTVS which can be less selective in targeted species than direct application techniques. Shrubs and forbs are slightly more vulnerable to imazapyr, and sulfometuron methyl than aminopyralid. To minimize potential injury to sagebrush, those chemicals would be used primarily in monoculture infestations where few shrubs and other forbs are present.

There will be no long term negative impacts to bighorn sheep habitat under the proposed action from manual or herbicide treatments. As mentioned above, herbicides will be carefully selected when conducting treatments within bighorn sheep habitat to reduce the potential for inadvertent damage or mortality to sagebrush and other native plant communities. Areas that are treated manually will likely revegetate within the same growing season or by the following year. Over the long term, control and eradication of invasive species such as cheatgrass in bighorn sheep habitat will help maintain quality habitat for this species.

Biological Controls:

Targeted grazing: To reduce the threat of disease transmission, targeted grazing using domestic sheep would not be used to treat weeds in areas where interactions could occur with wild sheep. Targeted grazing from other livestock may result in some disturbance and temporary displacement of individual bighorn sheep. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts such as disturbance or grazing competition. Overtime, any short term impacts to bighorn sheep would be offset by overall improved habitat conditions for the species by reducing invasive grass and other noxious weed species.

Insects: It is unlikely that insects would be used in bighorn sheep habitat for biological control purposes. Currently there is no known insect or pathogen that is effective in reducing cheatgrass infestations. Although other noxious weeds such as thistles can occasionally occur in some portions of bighorn sheep habitat, they typically occur in such small numbers that the use of insects would not be effective. If biological controls are determined to be the appropriate treatment method, under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning- Mechanical and prescribed burn treatment methods and conditions would be identical as to those described in the sage grouse and pygmy rabbit sections above. Bighorn sheep could be displaced during burning and or mowing operations due to disturbance from crews and equipment. Because prescribed burning would only occur in small increments (20 acres or less), bighorn sheep would be able to easily escape the treatment area without incurring any impacts from smoke or heat associated with the fire. Depending on the level of ground disturbance and vegetative plant response to burning and or mowing, bighorn sheep may not return to the area until native plant communities recover (one to five years). Burning in bighorn sheep habitat would occur rarely and under highly controlled circumstances. Short term impacts to bighorn sheep habitat would result from prescribed burning

treatments while native plant communities recover. Recovery period could take potentially up to five years for reestablishment of native grasses and re-sprouting of sagebrush. Over the long term, however, habitat conditions would be improved by removing non-native grasses and allowing for native plants to recover.

Cumulative Impacts: The biggest threat to bighorn sheep is disease transmission from domestic sheep. Loss of habitat from wildfires and invasion of non-native annual grasses also have become an increasing concern in bighorn sheep habitat**.** Within the last decade, wildfire has burned thousands of acres of sagebrush and pinyon juniper habitat within and adjacent to the project area. Including the Spring Peak fire in 2013 which burned nearly 12,000 acres of primarily sagebrush habitat. Cheatgrass and other invasive species are present in some of these burned areas; however, post fire restoration efforts, such as seeding and active weed management have helped with native plant restoration. In 2015, a collaboration of agencies and volunteers planted several thousand sagebrush seedlings in the Spring Peak burn area to help restore sagebrush habitats. To reduce the threat of future high intensity fires, the BLM, the Forest Service and other local agencies have completed or are in the process of completing multiple fuels reduction projects and habitat restoration projects in or near important habitat sage grouse which could potentially benefit bighorn sheep as well (Bi-State Plan 2012). Under the proposed action, treatment of invasive species such as cheatgrass will also help reduce the fuel loading in sagebrush habitat as well as reduce the threat of increased infestations following a wildfire. The effects from the proposed action would not incrementally result in negative impacts to bighorn sheep when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination the proposed action may impact individual bighorn sheep but will not lead to a trend toward federal listing or a loss of viability.

TOWNSEND'S WESTERN BIG-EARED AND SPOTTED BATS

Townsend big-eared bats are known to roost in two locations within the project area, both of which occur in inactive and/or abandon mine sites. Roosting locations for the spotted bat on either district are not known. Noxious weeds do not occur within the immediate vicinity of the known roost sites. However, infestations of bull thistle occur within .25 miles of the Colorado Hill Mine site where Townsend big-eared bats could potentially forage.

Direct and Indirect Impacts

*Manual and Herbicide treatments***:** There will be no measurable impacts to Townsend's big-eared bats or spotted bats from the manual or herbicide treatment activities. The primary roosting sites for Townsend's big-eared bat and spotted bat includes areas that are not subject to noxious weed infestations including caves, mines, and rock cliffs. Townsend's big-eared bats do occasionally roost in bark or in cavities of large diameter, old growth conifers. However, old growth conifer areas are typically not associated with high densities of noxious weeds and therefore any weed treatment near a potential roost site would be rare. Potential foraging habitat for these species such as riparian areas, are prone to some level of noxious weed infestations. However, because both bat species are nocturnal foragers, weed treatment activities, which occur during the day, would not result in any disturbance to foraging bats.

Because of their high rate of food intake, high metabolic rates, and high rate of fat mobilization, all bats can be at risk of bioaccumulation of toxic chemicals from high levels of pesticides found in their prey (insects), particularly when insecticides are used (Luce et al 2007, Capinera 2015). In general, herbicides are considered to be far less toxic to animals than insecticides (Capinera 2015) In addition, at proposed application rates for this project, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute exposure scenarios at application rates described in the Proposed Action that will result in a HQ >1 for a small mammal consuming contaminated insects. The likelihood of a chronic exposure to contaminated insects is remote, given the small acreages treated and the relatively large areas in which bats forage. The bats are not likely to forage exclusively within treated areas over a 90- day period (the chronic exposure) so there does not appear to be a plausible risk from chronic exposure.

Mechanical, Biological, and Prescribed Burning- Townsend's big-eared bats and spotted bats are known to utilize a wide variety of habitat types for foraging, including some meadows and pastures that have potential to become heavily infested with noxious and invasive species. If infestations became large enough and contiguous enough, they may be treated using mechanical, biological and prescribed burning weed treatments. Because these treatments cover relatively large areas, reductions in localized prey (insect) populations could occur over the short term. However, insect populations would likely already be reduced in these infested areas due to the lack of native plant biodiversity. Non-native plants can reduce the diversity of insect populations, even where the non-native plants are closely related to the native plants (Science Daily 2015). Therefore, although some short term (one growing season) reductions in insect populations may occur in these localized areas, the restoration of native plant communities will help improve insect populations over the long term. In addition, treatment activities would not be occurring near typical roosting sites for bats and would occur during daylight hours when bats would not be foraging and therefore there will be no direct impacts from these activities.

Cumulative Impacts: The biggest threat to Townsend's big-eared bat is the disturbance and destruction of roosting habitats. Alteration to important foraging habitat is considered to be one of the largest threats to spotted bats. Within the project area on the Carson Ranger District, the only known roost site for Townsend's big eared bats occurs near Monitor Pass in Alpine County, California. Townsend's big eared bats are also known to occur near the Chemung Mine on the Bridgeport Ranger District. In 2006, bat gates were installed at these sites to protect sensitive bat species from human disturbance. Both mining districts are currently closed to mining and have been inactive for numerous years. Roosting locations for the spotted bat on either district are not known. Under the proposed action, foraging habitat for Townsend big-eared bats and spotted bats will be improved due to the reduction of noxious weeds resulting in more viable and productive native plant communities. The effects from the proposed action would not incrementally result in negative impacts to Townsend big-eared or spotted bats when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: Based on the analysis conducted in the BE (summarized above), it is my determination the proposed action **may impact** individual Townsend's big eared bats and spotted bats from temporary reductions in insect populations, but impacts will be minor, short term and will not lead to a trend toward federal listing or a loss of viability.

3. Management Indicator Species

YELLOW-RUMPED WARBLER

Direct and Indirect Impacts

Under the proposed action, only minor and short term (less than one day) impacts to yellow-rumped warblers would occur. Mixed conifer habitat types associated with yellow-rumped warblers are generally not conducive to large infestations of noxious and/or invasive weed species. In the project area only 0.14% of potential habitat for yellow-rumped warblers is known to have noxious weed occurrences.

Manual and Herbicide Treatments: Weed treatment activities could result in some disturbance to yellow-rumped warblers. Human disturbance from weed treatments may cause yellow-rumped warblers to be displaced or disrupt foraging activities. However, this disturbance would be temporary, lasting only the day (or less) and would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to yellow-rumped warblers from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small bird such as the yellow-rumped warbler, eating contaminated insects. However, under the proposed action triclopyr would be used primarily to treat salt cedar tamarisk which does not occur within yellow-rumped warbler habitat. Furthermore, triclopyr would be applied using cut-stump and wick and wipe methods which would greatly reduce the potential for exposure. Other herbicides and surfactants applied as described in the Proposed Action pose no risk to these species.

Biological Methods: It is unlikely biological controls would be used in habitat for yellow-rumped warblers given the relatively small occurrences of noxious weeds associated with mixed conifer habitat. However, a major disturbance such as wildfire may result in some localized expansions of noxious weeds where targeted grazing and or the use of biological control insects may be determined to be appropriate.

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of yellow-rumped warblers. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from disturbance associated with grazing. Overtime, any short term impacts to yellow-rumped warblers would be offset by overall improved habitat conditions for the species by reducing noxious weed populations.

Insects: The use of biological controls insects will have no impact on yellow-rumped warblers or their habitat. Insects used to treat noxious weeds are host specific and would not impact native plant species. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small isolated noxious weed populations that occur in mixed conifer habitat within the project area, mechanical and prescribed burning treatments would likely not be used. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in conifer stands. The occasional use of hand held string trimmers, which may be needed for denser patches of noxious weeds, may result in minor noise related disturbance to individual yellow-rumped warblers. However the disturbance would be short term (less than one day) and not cause any long term impacts to this species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Impacts to yellow rumped warblers from prescribed burning could be greater in the spring when these species may be nesting. However, it is unlikely this species would be nesting in prescribed burn treatment areas as these sites would be highly degraded from weed infestations and likely no longer suitable for nesting. Yellow-rumped warblers present in areas adjacent to a treatment site might be impacted from the effects of smoke and heat. However, because prescribed burns will be carried out as low intensity burns in small increments, direct impacts to this species will be minor and short term (one to two days). Additionally, individual yellow-rumped warbler may be temporarily impacted from disturbance associated with treatment equipment (vehicles, crews) and flushed from the site and avoid the area while treatments are occurring. Again, this disturbance will be short term, lasting only as long as crews are in the area (one to two days) and will not result in any long term negative effects.

There will be no negative impacts to habitat for yellow-rumped warblers under the proposed action. The treatment of noxious and invasive species will be a negligible loss to existing habitat and will not impact any life requisites for this species. Over the long term, control and eradication of noxious weeds in yellow-rumped warbler habitat will help maintain quality habitat for this species.

Cumulative Impacts: Yellow-rumped warblers are considered common and widespread in the Sierra Nevada and on increasing trend globally. Within the project area, past fuels reduction projects which involve thinning conifers such as Dog Valley (USDA 2012), Twin Lakes, and Markleevillage (2010), have likely had some impacts to yellow-rumped warblers, primarily due to disturbance associated with project activities. Future weed treatments conducted in yellow-rumped warbler habitat will not measurably add to any past, current or future disturbance or other negative effects to this species. Noxious weeds occur as small isolated patches in habitat associated with yellow-rumped warblers and therefore would require minimal treatment efforts in those areas. The effects from the proposed action would not incrementally result in negative impacts to yellow-rumped warblers when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: The California Integrated Weed Management Project will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of yellow-rumped warblers across the Sierra Nevada bioregion.

YELLOW WARBLER

Direct and Indirect Impacts

Yellow warblers are associated with alder, willow and other riparian habitat found in montane, mixed conifer settings. Approximately 6,856 acres of montane riparian habitat occurs within the project area of which 11 acres, or 0.16% have some level of noxious weed infestations.

Manual and Herbicide Treatments: Weed treatment activities could result in some disturbance to yellow warblers. Human disturbance from weed treatments may cause yellow warblers to be displaced or disrupt foraging activities. However, given the relatively small amount if weeds known to occur in yellow-warbler habitat, disturbance from weed treatments would occur infrequently and only last one day (or less). This low and infrequent level of disturbance would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to yellow warblers from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small bird such as the yellow warbler, eating contaminated insects. Under the proposed action triclopyr would be used primarily to treat salt cedar tamarisk. Salt cedar tamarisk is associated with non-montane riparian habitats along floodplains, riverbanks, stream courses in arid regions. Therefore it is highly unlikely yellow warblers within the project area would ever be exposed to triclopyr applications. Furthermore, triclopyr would be applied using cut-stump and wick and wipe methods which would greatly reduce the potential for exposure to wildlife. Other herbicides and surfactants applied as described in the Proposed Action pose no risk to these species.

Biological Methods:

Targeted grazing: Targeted grazing will have minimal effects on yellow warblers as this treatment method will not be used in riparian areas where yellow warblers typically occur. Targeted grazing occurring in adjacent areas may result in short term disturbance to individual yellow warblers that may be foraging in upland areas. However, disturbance will be short term (one day) and will not result in any negative effects to habitat. For the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from disturbance associated with grazing.

Insects: Due to the limited occurrences of noxious weeds within riparian habitats in the project area, it is unlikely insects would be used as a weed treatment method. If biological controls are determined to be the appropriate treatment method there will be no measurable effects to yellow warblers or their habitat. Insects used to treat noxious weeds are host specific and would not impact native plant species. Only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Prescribed burning and mechanical treatments such as mowing will not be conducted in riparian habitats which are associated with yellow warblers. Because of the small isolated noxious weed populations that occur in yellow warbler habitat Mechanical treatments with hand held string trimmers may occasionally be used to treat isolated patches of noxious weeds. Noise from the trimmers may cause disturbance to individual yellow warblers but the disturbance will be short and not cause any long term impacts to the species.

There will be no negative impacts to habitat for yellow warblers under the proposed action. The treatment of these isolated individual plants will be a negligible loss to existing habitat and will not impact any life requisites for this species. Over the long term, control and eradication of noxious weeds in yellow warbler habitat will help maintain quality habitat for this species.

Cumulative Impacts: Yellow warblers populations along the eastern slope of the Sierra including Mono County, appear to be stable, although Region wide declines in populations have been detected. The primary threat to yellow warblers is habitat destruction and cowbird parasitism. Under the proposed action, treatment activities will not measurably add to any past, current or future disturbance or other negative effects to this species. Noxious weeds occur as small isolated patches in habitat associated with yellow warbler and therefore would require minimal treatment efforts in those areas. The effects from the proposed action would not incrementally result in negative impacts to yellow warblers when considered along with the effects of past, present and reasonably foreseeable actions. Weed treatments conducted on existing weed populations and employing EDRR for future infestations, will help maintain and improve habitat conditions for yellow warblers within the project area.

Determination: The California Integrated Weed Management Project will not alter the existing trend in the habitat conditions nor will it lead to a change in the distribution of yellow warblers across the Sierra Nevada bioregion.

WOODPECKERS

Direct and Indirect Impacts

Under the proposed action, only minor and short term (less than one day) impacts to the hairy woodpecker and Williamson's sapsucker (hereon referred to as woodpeckers) would occur. Within the project area, approximately 0.2% of the available mixed conifer habitat and 0.004% of aspen habitat currently have noxious weed infestations.

Manual and Herbicide Treatments: Weed treatment activities could result in some disturbance to woodpeckers. Human disturbance from weed treatments may cause woodpeckers to be displaced or disrupt foraging activities. However, this disturbance would be temporary, lasting only the day (or less) and would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to woodpeckers from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios for birds are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small bird such as the woodpeckers, eating contaminated insects. However, under the proposed action triclopyr would not be used in habitat for woodpeckers and therefore

there would be no risk of exposure to this chemical. Furthermore, because woodpeckers forage insects from tree bark and tree cavities there is very little risk of eating contaminated insects.

Biological Methods: It is unlikely biological controls would be used in habitat for Hairy woodpeckers and Williamsons' sapsuckers given the relatively small occurrences of noxious weeds associated with mixed conifer habitat. However, a major disturbance such as wildfire may result in some localized expansions of noxious weeds where targeted grazing and or the use of biological control insects may be determined to be appropriate.

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of woodpeckers. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from trampling and other disturbance associated with grazing. Overtime, any short term impacts to these woodpeckers would be offset by overall improved habitat conditions for the species by reducing noxious weed populations.

Insects: If biological controls are determined to be an appropriate treatment method, there will be no measurable effects to these woodpeckers or their habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small isolated noxious weed populations that occur in hairy woodpecker and Williamson's sapsucker habitat within the project area, mechanical and prescribed burning treatments would likely not be used. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in mixed conifer stands associated with these species. The occasional use of hand held string trimmers, which may be needed for isolated patches of noxious weeds, may result in minor noise related disturbance to individual hairy woodpecker and Williamson's sapsucker. However the disturbance would be short term (less than one day) and not cause any long term impacts to the species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Impacts to hairy woodpeckers and Williamson's sapsucker from prescribed burning could be greater in the spring when these species may be nesting. However, it is unlikely either species would be nesting in prescribed burn treatment areas as these sites would be highly degraded from weed infestations and likely no longer suitable for nesting. If nesting is suspected in a proposed treatment area, pre-treatment surveys would be conducted to check all trees with potential cavities within a proposed burn area and determine

nesting status. If nesting is confirmed, treatments would be postponed until after the critical nesting period for these species. Hairy woodpeckers and Williamson's sapsuckers present in areas adjacent to a treatment site might be impacted from the effects of smoke and heat. However, because prescribed burns will not occur in active nesting territories and will be carried out as low intensity burns in small increments, direct impacts to these species will be minor and short term (one to two days). Additionally, individual hairy woodpeckers and Williamson's sapsuckers may be temporarily impacted from disturbance associated with treatment equipment (vehicles, crews) and flushed from the site and avoid the area while treatments are occurring. Again, this disturbance will be short term, lasting only as long as crews are in the area (one to two days) and will not result in any long term negative effects.

There will be no negative impacts to habitat for hairy woodpeckers and Williamson's sapsuckers under the proposed action. The treatment of these noxious and invasive weeds will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in hairy woodpecker and Williamson's sapsucker habitat will help maintain quality habitat for these species.

Cumulative Impacts: Both hairy woodpeckers and Williamson's sapsuckers are common residents in the Sierra Nevada with stable population trends in the region and globally. Within the project area, past fuels reduction projects which involve thinning conifers such as Dog Valley (USDA 2012), Twin Lakes, and Markleevillage (2010), have likely had some impacts to woodpeckers, primarily due to habitat alteration from tree thinning activities. However, design features, including maintaining large diameter snags and live trees, were incorporated into these projects to minimize direct and indirect impacts to woodpeckers and provide protection for critical nesting and foraging habitat Future weed treatments conducted in woodpecker habitat will not add to any potential negative effects from past, present, or future habitat alteration. Under the proposed action habitat conditions for woodpeckers will be improved by treating current noxious weed populations and using EDRR for future infestations.

Determination: The California Integrated Weed Management Project will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of hairy woodpeckers or Williamson's sapsuckers across the Sierra Nevada bioregion.

MULE DEER

Mule deer are widely adapted to a variety of habitat types and could potentially occur throughout the project area. Within the 693,721 acre project area, noxious weeds are known to occur on approximately 1,256 acres or 0.2% of the project area. For the purposes of this report, effects analysis was focused primarily on lower elevation stands of sagebrush as these areas tend to be critical or important habitat for wintering mule deer, and are the most vulnerable to type conversion to invasive weed populations. According to habitat modeling conducted for this analysis, there are approximately 98 acres of mapped noxious and invasive weeds that occur within sagebrush stands below 6,000 feet elevation within the project area. These acres do not necessarily account for all of the cheatgrass and/or medusahead that may be present.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Within mule deer habitat, weed crews and their equipment could temporarily displace individual deer while weed treatment efforts were being conducted. However,

disturbance would be temporary, lasting only one to two days. Herbicides and surfactants applied as described in the proposed action pose no risk to mule deer. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for large mammals such as mule deer. Herbicides and surfactants applied as described in the proposed action pose no risk to these species. Because mule deer habitat is highly vulnerable to annual grass invasions, particularly after a wildfire, applications of pre-emergent herbicides will likely be a common technique to treat the infestations. This could potentially include applications of pre-emergent herbicides such as imazapyr, aminopyralid, and sulfometuron methyl using boom sprayers from trucks and or UTVS which can be less selective in targeted species than direct application techniques. Shrubs and forbs are slightly more vulnerable to imazapyr, and sulfometuron methyl than aminopyralid. To minimize potential injury to sagebrush, those chemicals would be used primarily in monoculture infestations where few shrubs and other forbs are present.

There will be no long term negative impacts to mule deer habitat under the proposed action from manual or herbicide treatments. As mentioned above, herbicides will be carefully selected when conducting treatments within mule deer habitat to reduce the potential for inadvertent damage or mortality to sagebrush and other native plant communities important to mule deer. Areas that are treated manually will likely revegetate within the same growing season or by the following year. Over the long term, control and eradication of invasive species such as cheatgrass in mule deer habitat will help maintain quality habitat for this species.

Biological Controls:

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of individual mule deer. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts such as disturbance or grazing competition. Overtime, any short term impacts to mule deer would be offset by overall improved habitat conditions for the species by reducing invasive grass and other noxious weed species.

Insects: The use of insects for biological control would have no impacts on mule deer or their habitat. Insects used to treat noxious weeds are host specific and would not impact native plant species. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning- Mechanical treatments using bobcat mowers and prescribed burning methods would only be used in areas where these methods were determined necessary as part of an integrated approach to treatment of the area. Typically these would be sites that have type converted from native vegetation to cheatgrass or other invasive species. If prescribed burning is proposed as a treatment, a site specific burn plan and close consultation and coordination with a fuels specialist, would be

completed before any prescribed burning activities occurred. Prescribed fires would be conducted as fast (one to several hours), low to moderate intensity burns that we be conducted in small increments of 20 acres or less. These treatment areas would likely overlap with lower elevation areas dominated by sagebrush, much of which is considered critical wintering habitat for mule deer. Mule deer could be displaced during burning and or mowing operations due to disturbance from crews and equipment. Because prescribed burning would only occur in small increments (20 acres or less), mule deer would be able to easily escape the treatment area without incurring any impacts from smoke or heat associated with the fire. Depending on the level of ground disturbance and vegetative plant response to burning and or mowing, mule deer may not return to the area until native plant communities recover (one to five years). Burning in mule deer habitat would occur rarely and under highly controlled circumstances. Short term impacts to mule deer habitat would result from prescribed burning treatments while native plant communities recover. Recovery period could take potentially up to five years for reestablishment of native grasses and re-sprouting of sagebrush. Over the long term, however, habitat conditions would be improved by removing non-native grasses and allowing for native shrubs and grasses to recover.

Cumulative Impacts: The largest threat to mule deer includes the habitat loss from urbanization, wildfire and other factors**.** Loss of habitat from wildfires and invasion of non-native annual grasses also have become an increasing concern in mule deer habitat, particularly in sagebrush habitat which is critical for mule deer in the winter**.** Within the last decade, wildfire has burned thousands of acres of sagebrush habitat within and adjacent to the project area. Including the Spring Peak fire in 2013 which burned nearly 12,000 acres of primarily sagebrush habitat. Cheatgrass and other invasive species are present in some of these burned areas; however, post fire restoration efforts, such as seeding and active weed management have helped with native plant restoration. In 2015, a collaboration of agencies and volunteers planted several thousand sagebrush seedlings in the Spring Peak burn area to help restore sagebrush habitats. To reduce the threat of future high intensity fires, the Forest Service and other local agencies have completed or are in the process of completing multiple fuels reduction projects and habitat restoration projects in or near important habitat sage grouse which could potentially benefit mule deer as well (Bi-State Plan 2012). Under the proposed action, treatment of invasive species such as cheatgrass will also help reduce the fuel loading in sagebrush habitat as well as reduce the threat of increased infestations following a wildfire. The effects from the proposed action would not incrementally result in negative impacts to mule deer when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: The California Integrated Weed Management Project will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of mule deer across the Sierra Nevada bioregion.

AMERICAN MARTEN

Direct and Indirect Impacts

Under the proposed action, only minor and short term (less than one day) impacts to marten will occur. Late seral forest habitat types associated with marten are generally not conducive to large infestations of noxious and/or invasive weed species. Within the project area there is approximately 178,262 acres of mixed conifer habitat that could potentially provide habitat for marten. Of these acres, approximately 252 acres, or 0.14% of available habitat, have some level of noxious weed infestations. Over 90% of the infested acres are located in the lower elevations of eastside pine where marten generally would not occur.

Manual and Herbicide Treatments: Weed treatment occurring within habitat for marten would likely result in little to no disturbance to marten. Marten are nocturnal and conduct most of their foraging opportunities during the night when weed crews would not be present. During the day, marten usually hide in dens, tree crevices, and old rodent burrows, and are protected from external noise and disturbance. Because infestations in late seral conifer are almost always very small, consisting of individual plants, treatments could be conducted quickly and with little to no ground disturbance. There will be no direct or indirect impact to marten from the use of herbicides. SERA risk assessments were reviewed and indicate that at proposed application rates, the estimated doses from the exposure scenarios for mammals are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the Proposed Action that will result in a Hazard Quotient (HQ) above one for large mammals (such as the marten) eating contaminated prey. Herbicides and surfactants applied as described in the Proposed Action pose no risk to these species. Chronic exposures are not likely because although marten eat a wide range of food types (rodents, birds, insects, berries seeds), there is almost no potential for any of those food sources to be contaminated due to the lack of weeds occurring in marten habitat.

Biological Control Methods: It is unlikely biological controls would be used in the late seral mixed conifer habitat associated with marten due to the relatively small occurrences of noxious weeds. However, a major disturbance such as wildfire may result in some localized expansions of noxious weeds where targeted grazing and or the use of biological control insects may be determined to be appropriate.

Targeted grazing: Targeted grazing may result in some disturbance and temporary displacement of marten. However, for the purposes of weed control, livestock are expected to sweep through the treatment area, rather than congregate in one place for an extended period, which would limit potential long term, permanent impacts from disturbance associated with grazing. Overtime, any short term impacts to marten would be offset by overall improved habitat conditions for the species by reducing noxious weed populations.

Insects: If biological controls are determined to be an appropriate treatment method, there will be no measurable effects to this species or its habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Because of the small isolated noxious weed populations that occur in marten habitat within the project area, mechanical and prescribed burning treatments would likely not be used. Additionally, mechanical treatments such as mowing are generally not a practical treatment method in late seral conifer stands. The occasional use of hand held string trimmers, which may be needed for denser patches of noxious weeds, may result in minor noise related disturbance to marten. However the disturbance would be short term (less than one day) and not cause any long term impacts to the species.

In the rare circumstance that prescribed burning would be used as a treatment method, burns would be conducted in small acre increments of no more than 20 acres to assure careful control of intensity and size. Monitoring of burned sites would continue for several years to determine if follow-up treatments are necessary. A site specific burn plan, and close consultation and coordination with a fuels specialist and other resource specialists, would be completed before any prescribed burning activities occurred. The burn plan would specify burning conditions necessary to minimize the threat of escaped fire from occurring.

Impacts to marten from prescribed burning could be greater in the spring when this species may be denning. Specific denning locations for marten are not currently known. However, it is unlikely this species would be denning or foraging in prescribed burn treatment areas as these sites would be highly degraded from weed infestations and likely no longer suitable habitat. Marten that occur adjacent to treatment sites may also be vulnerable to impacts from heat and smoke associated with prescribed burns. However, because prescribed burns will not occur in active denning territories and will be carried out as low intensity burns in small increments, direct impacts to marten would be minor and short term (one to two days)

There will be no negative impacts to habitat for marten under the proposed action. The treatment of these noxious and invasive weeds will be a negligible loss to existing habitat and will not impact any life requisites for either of these species. Over the long term, control and eradication of noxious weeds in marten habitat will help maintain quality habitat for these species.

Determination: Under the proposed action, there will be no measurable impacts to marten from treatment activities. The California Integrated Weed Management Project will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of marten across the Sierra Nevada bioregion.

MACROINVERTEBRATES

Within the project area, approximately .175 acres of noxious weeds occur within 100 feet of 977 miles of perennial streams and approximately 5.7 acres of noxious weeds occur within 100 feet of a lake or pond.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Within the project area, current weed infestations in proximity to perennial water sources are relatively small. Under the proposed action there are numerous design features to minimize potential impacts to aquatic species including macroinvertebrates (see DF#s 4-15). For example, to minimize the potential for herbicide drift into water sources, every effort would be made to use manual weed treatment methods within 50 feet of perennial rivers, streams, lake, wet meadows, and other water bodies, including seasonally flooded areas. Manual treatments including digging and hand pulling would result in minimal ground disturbance and no measurable sediment loading into the waterway. If herbicides are determined to be necessary within 50 feet, only herbicides and surfactants that are registered with the California Department of Pesticide Regulation for aquatic use will be used. In addition, herbicide application methods used between 50 and 10 feet of a perennial waterway would only include spot spraying, dip and clip and or wicking and wiping methods to minimize potential drift. Within 10 feet of a perennial waterway, only dip and clip and/or wicking and wiping methods will be used. Design features associated with threatened and endangered species, including Lahontan cutthroat trout and Paiute cutthroat trout, provide additional protection for aquatic resources (Design Features 23,24,25,27,28).

Herbicides and surfactants applied as described in the proposed action pose no risk to aquatic macroinvertebrates. The exposure scenarios for aquatic organisms are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides. There are no acute or chronic exposure scenarios at application rates described in the proposed action that will result in a Hazard Quotient (HQ) above one for aquatic organisms such as macroinvertebrates. Herbicides and surfactants applied as described in the proposed action pose no risk to these species. There will be no long term negative impacts to aquatic habitats under the proposed action from manual or herbicide treatments.

Biological Controls:

Targeted grazing: Targeted grazing would have no measureable impacts to macroinvertebrates. Under the proposed action, targeted grazing will not occur within 50 feet of a perennial stream to prevent streambank disturbance. Targeted grazing uses portable fences and trained livestock to move livestock to specific target plants in a treatment area. Therefore there would be no opportunity for streambank disturbance that may potentially cause erosion and affect macroinvertebrates. Furthermore, with targeted grazing, livestock are expected to sweep through a treatment area, and not congregate in one place for an extended period. Targeted grazing would not be used in wet and saturated meadows.

Insects: The use of insects for biological control would have no impacts on macroinvertebrates or their habitat. Insects used to treat noxious weeds are host specific and would not impact native plant species that may be supporting riparian habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning- Under the Proposed Action, there would be no measurable impacts to macroinvertebrates from mechanical and prescribed burning treatment methods. The use of mechanical treatments using mowing would not be used within 50 feet of a waterbody to minimize the potential for any mowed clippings to enter the waterway. Prescribed burning treatments would also not be conducted within 300 feet of a waterbody to protect native riparian vegetation which is important in maintaining quality macroinvertebrate habitat. Furthermore, both of these treatment methods would be conducted in small (20 acres or less) increments. If prescribed burning is proposed as a treatment, a site specific burn plan and close consultation and coordination with a fuels specialist, would be completed before any prescribed burning activities occurred. Prescribed fires would be conducted as fast (one to several hours), low to moderate intensity burns that we be conducted in small increments of 20 acres or less which will reduce the potential for inadvertent impacts such as escaped fire or substantial erosion.

Determination: The California Integrated Weed Management Project will not alter the existing trend in habitat, nor will it lead to a change in the distribution of macroinvertebrates in the project area or across the Sierra Nevada bioregion.

4. OTHER SPECIES CONSIDERED

SIERRA NEVADA WILLOW FLYCATCHER

Sierra Nevada willow flycatchers (SNWF) are associated with dense thickets of willow that occur in fresh water emergent wetlands (wet meadows that have a standing water component). Within the project area, historic nesting areas for willow flycatchers occur in at least six locations on the Carson Ranger District (all in Alpine County) and two on the Bridgeport Ranger District. Active nesting currently only occurs at one of these territories. Based on spatial analysis conducted for this report, there are no known noxious weeds within 300 feet of any of these areas.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Noxious weeds do not currently occur in proximity to SNWF territories and therefore the potential for disturbance from manual or herbicide treatments is minimal. Furthermore, the standing water component of SNWF habitat is not conducive to noxious weed production so it is unlikely that future infestations will occur. Future infestations could however, occur on the periphery of nesting areas were meadow conditions are drier. Weed treatment activities in these areas could result in some disturbance to SNWFs. Human disturbance from weed treatments may cause SNWFs to be displaced or disrupt foraging activities In order to minimize disturbance to SNWF, the wildlife biologist will coordinate with the District weed manager during the Annual Implementation Process to designate a Limited Operating Period (LOP) near the nest site to avoid disturbance during the critical nesting period for SNWF.

There will be no direct or indirect impact to SNWFs from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small bird such as the SNWF, eating contaminated insects. Under the proposed action triclopyr would be used primarily to treat salt cedar tamarisk. Salt cedar tamarisk is associated with non-montane riparian habitats along floodplains, riverbanks, stream courses in arid regions, and can be found in habitat for SNWFs. A subspecies of the willow flycatcher, the endangered Southwestern willow flycatcher, have been recorded nesting in salt cedar tamarisk in Arizona. Tamarisk occurs rarely within the project area and is currently only known to occur along the East Carson River as a few individual trees To minimize potential impacts to SNWF, triclopyr would not be used within 300 feet of any active SNWF nesting territory. Furthermore, triclopyr would be applied using cut-stump and wick and wipe methods which would greatly reduce the potential for exposure to SNWF or any other wildlife. Other herbicides and surfactants applied as described in the Proposed Action pose no risk to SNWF.

Biological Controls:

Targeted Grazing: Targeted grazing would have no measureable impacts to SNWFs. Under the proposed action, targeted grazing will not occur within 50 feet of a perennial stream or other waterbody which include wetlands such as willow flycatcher habitat. Furthermore, during the Annual Implementation Process, the wildlife biologist would coordinate with the district weed manager to determine if a larger buffer and/or a LOP is required to protect SNWFs if grazing is recommended adjacent to active SNWF nesting areas. Targeted grazing will have no impact to SNWF habitat. Targeted grazing is intensively managed and uses portable fences, herders, dogs, and trained livestock to move livestock to specific target

plants in a treatment area. Therefore there would be no opportunity for livestock to inadvertently damage habitat for SNWFs. Furthermore, with targeted grazing, livestock are expected to sweep through a treatment area, and not congregate in one place for an extended period. Targeted grazing would not be used in wet and saturated meadows.

Insects: The use of insects for biological control would have no impacts on habitat for SNWF or their habitat. Insects used to treat noxious weeds are host specific and would not impact native willows, alder or other important components of SNWF habitat. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical and Prescribed Burning: Mechanical treatments, with the exception of hand held string trimmers, would not be used in wet meadow conditions associated with SNWF habitat. The noise from the string trimmers may cause some level of disturbance to SNWF depending on how close the nest sites are from the treatment. Prescribed burning could (in rare cases) be used in upland habitat adjacent to nesting territories. Prescribed fires would be conducted as fast (one to several hours), low to moderate intensity burns that would be conducted in small increments of 20 acres or less. To avoid impacts to SNWFs from prescribed fire, the district wildlife biologist would coordinate with the District weed manager to designate an LOP near the nesting territory. Prescribed burning would not occur unless the territory is not active or the nesting cycle has been completed.

Cumulative Impacts: Sierra Nevada willow flycatcher populations within the Sierra Nevada bioregion appear to be declining (Mathewson et al 2012, Loffland et al 2014). The reasons for the decline are not completely clear but maybe attributed to changing climate conditions affecting the length of breeding seasons as well as a declining conditions of meadows systems (Ibid). For example, climate change may start impacting the hydrology of wetlands, which in turn reduces willow populations as well as potentially insect populations. Standards and Guidelines in the Sierra Nevada Forest Plan Amendment (2001, 2004) for SNWF have helped protect habitat for this species by limiting disturbance to habitat and nesting from livestock grazing. Under the proposed action, treatment activities will not measurably add to any past, current or future disturbance or other negative effects to the SNWF. Noxious weeds occur as small isolated patches in adjacent habitat associated with SNWFs and therefore would require minimal treatment efforts in those areas. Weed treatments conducted on existing weed populations and employing EDRR for future infestations, will help maintain and improve habitat conditions for SNWFs within the project area. The effects from the proposed action would not incrementally result in negative impacts to bighorn sheep when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: There will be no negative impacts to habitat for SNWFs under the proposed action. The treatment of these isolated individual plants will be a negligible loss to existing habitat and will not impact any life requisites for this species. Over the long term, control and eradication of noxious weeds in SNWF habitat will help maintain quality habitat for this species. The California Integrated Weed Management Project will not negatively alter habitat conditions for the Sierra Nevada willow flycatcher and will not contribute to a downward trend in the local or regional populations.

MIGRATORY BIRDS

Although migratory birds occur in virtually all habitat types, aspen-meadow riparian, sagebrush, and pinyon juniper are the most vulnerable to noxious and invasive weed infestations. Pinyon juniper and sagebrush plant communities, particularity at lower elevations (below 5,000 feet) are highly vulnerable to habitat type conversion to cheatgrass and other annual invasive grass conversion following a major disturbance such as wildfire. According to the California Integrated Weed Management Vegetation Report, the project area contains approximately 40,261 acres of aspen, riparian and meadow habitat, 174,701 acres of sagebrush, and 53,678 acres of pinyon juniper habitat. Mapped infestations in these habitat types are currently relatively small with only 161 acres infested in riparian (0.4 %), 80 acres in sagebrush (.05%) and 20 acres in pinyon juniper (.037%) (mapped infestations do not include annual grasses such as cheatgrass and medusahead.

Direct and Indirect Impacts

Manual and Herbicide Treatments: Weed treatment activities would likely result in some disturbance to migratory birds. Human disturbance from weed treatments may cause migratory birds to be displaced or disrupt foraging activities. In addition, some weed treatments may overlap with the nesting period for some migratory birds. Ground nesting birds and those nesting in low level vegetation such as shrubs, have the potential to me more affected than those nesting cavities or within tree canopies. However, given the relatively small amount of weeds known to occur throughout the project area, disturbance will only impact individual birds and will not impact over all nesting or foraging success of migratory birds. Weed treatments typically involve a small crew of two to four people and take one day or less to complete. This low and infrequent level of disturbance would not result in any measurable impacts to the viability of individuals or the population. There will be no direct or indirect impact to migratory birds from the use of herbicides. SERA risk assessments indicate that at proposed application rates, the estimated doses from the exposure scenarios are all less than the reported NOAEL (no-observable adverse effect level) for all herbicides other than triclopyr. The acute exposure scenario at application rates described in the Proposed Action could result in a HQ slightly above one for a small birds. Under the Proposed Action, triclopyr will only be used in limited situations, primarily to treat woody species such as salt cedar tamarisk (currently there are only a few (3-4) known tamarisk plants within the project area). Salt cedar tamarisk is associated with non-montane riparian habitats along floodplains, riverbanks, stream courses in arid regions. Triclopyr will be applied using direct application methods such as wick and wipe on individual plants or cut-stump application which will minimize the risk of non-target exposure and accidental drift. Other herbicides and surfactants applied as described in the Proposed Action pose no risk to migratory birds.

Biological Controls:

Targeted Grazing: Targeted grazing may directly impact migratory birds by flushing birds from nesting and or roosting areas. Because most birds are well adapted to the presence of wild and domestic ungulates, disturbance caused by targeted grazing would have no long term impacts on migratory birds. Furthermore, with targeted grazing, livestock are expected to sweep through a treatment area, and not congregate in one place for an extended period. Grazing has the potential to trample nests and or eggs of ground nesting birds. To minimize the potential of impacts to ground nesting birds, during the Annual Implementation Process, the wildlife biologist would coordinate with the district weed manager to

determine if a LOP is required. The LOP would restrict treatments during the typical breeding period for migratory birds based on the elevation and habitat within the proposed treatment site. If earlier treatments are required to meet weed treatment goals, surveys would be conducted immediately prior to treatment efforts so that protective buffers can be flagged around nest sites and avoided during treatment activities.

Although some impacts to vegetation may occur as a result of targeted grazing, they will be short term (one growing season) and not result in any long term loss of migratory bird habitat. Because targeted grazing is intensively managed, including the use of portable fences, herders, dogs, and trained livestock to move livestock to specific target plants in a treatment area, the risk of permanent damage to native vegetation is minor. To further reduce the risk of damage to migratory bird habitat, targeted grazing will not occur within 50 feet of a perennial stream or other waterbody which include wetlands and saturated meadows.

Insects: Insects used for biological control of weeds would have no impacts on habitat for migratory birds or their habitat. Insects used to treat noxious weeds are host specific and generally do not impact native plant species. Under the Proposed Action, only biological control agents that are permitted for release by the USDA Animal Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) will be used. Before being permitted by APHIS and CDFA, these insects must undergo considerable testing and meet other strict criteria prior to their release to ensure they will not pose a threat to non-target species (CDFA 2018). By utilizing only federally and state approved insects to control noxious weeds, the risk for inadvertent harm to native vegetation in the project area is minimal.

Mechanical, and Prescribed Burning: Both of these treatment activities have the potential to cause some level of disturbance to migratory birds. However, mechanical and prescribed burning treatments are typically only conducted when infestations have become contiguous monocultures of noxious or invasive weeds. Habitats that have been type converted to single species, non-native plant communities lack the biodiversity and other life requisites important for migratory birds and other wildlife species. Therefore, while migratory birds may occasionally pass through these infestations, it is unlikely that large numbers of migratory birds would be occupying them for nesting or consistent foraging opportunities. As mentioned previously, mechanical and prescribed burning treatments will be used very rarely in the project area and only under very controlled and specific circumstances. During the Annual Implementation Process the District wildlife biologist will coordinate with the District weed manager to incorporate LOPs or other protective features to limit impacts from these activities to migratory birds.

There will be no negative long term impacts to habitat for migratory birds under the proposed action. The treatment of noxious weed populations will be a negligible loss to existing habitat and will not impact any life requisites for migratory birds. Over the long term, control and eradication of noxious weeds will help maintain quality habitat for migratory birds.

Cumulative Impacts: Loss of quantity and quality of habitat in wintering and breeding grounds is one of the largest threats to many migratory bird species. Under the proposed action, treatment activities will not measurably add to any past, current or future disturbance or other negative effects to migratory birds. Noxious weeds occur as small isolated patches throughout the project area and therefore would require minimal treatment efforts in most areas. Weed treatments conducted on existing weed populations and employing EDRR for future infestations, will help maintain and improve habitat conditions for migratory within the project area. The effects from the proposed action would not incrementally result in negative

impacts to migratory birds or their habitat when considered along with the effects of past, present and reasonably foreseeable actions.

Determination: The California Integrated Weed Management Project will not alter the existing trend in the habitat conditions for migratory birds nor will it lead to a change in the distribution of migratory birds across the Sierra Nevada bioregion.

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APPENDIX A. MANAGEMENT DIRECTION

Toiyabe Land and Resource Plan- *Forest Wide Direction*

Goal #1 - Threatened, endangered, and sensitive species will be recognized and protected through habitat management and coordination with state wildlife agencies. Habitat will be in good-to-excellent condition. Lahontan cutthroat trout will be delisted. Paiute trout species will be firmly established. Bald eagle habitat will be maintained and peregrine falcons successfully reintroduced in the Sierra.

Goal #4 – Manage ecosystems containing sensitive plant and animal and threatened and endangered animal populations to maintain or increase these populations and to achieve recovery.

Goal #5 - Coordinate management practices which may affect threatened and endangered animal species with the US Fish and Wildlife Service, and California and Nevada state wildlife agencies.

Goal #8 - Minimize disturbing activities (grazing, timber, mining, etc.) on key mule deer habitat (fawning areas, winter rage, riparian areas, holding areas, migration corridors, etc.).

Goal # 9 - Manage habitats of wolverine, Mount Lyell salamander, yellow warbler, and other wildlife species that may have declining populations or narrow habitat requirements, to assure viable populations at reasonable distributions. Encourage surveys and other data gathering activities for these species.

Goal #12-Manage aspen stands at a mid-succession or higher ecological status with emphasis on improving age-class structure

Goal #15- Perform field inventories to identify habitat occupied by threatened and endangered species. Determine habitat needs and management strategies.

Final Record of Decision for Greater Sage-Grouse Bi-State Distinct Population Segment Forest Plan Amendment (Amends the1986 Toiyabe Forest Plan)

Goals and Objectives

- Goal 1: Bi-state sage grouse habitat and movement corridors are managed to bring vegetation communities to their ecological site potential and to maintain or increase the species.
- Goal 2: Bi-state sage grouse and habitats will benefit from standards and guidelines adopted to eliminate or reduce negative impacts and increase positive impacts from discretionary and nondiscretionary actions.
- Goal 4a: Areas at risk of conversion to a degraded, disturbed, or invaded state are

declining in size and distribution.

- Goal 4c: Bi-state sage grouse habitat has moderate to high resilience to disturbance and resistance to invasive annual grasses.
- Goal 5: Over the next 25 years, areas with ≥25−65% and areas with >65% sage brush cover are increasing through the implementation of integrated restoration strategies.

Standards and Guidelines

- Weed-S01: Treatment methodologies are based on the treatment areas' resistance to annual invasive grasses and the resilience of native vegetation to respond after disturbance: (1) use
  mechanical treatments (i.e., do not use fire) in areas with relatively low resistance to annuals, and (2) treat areas in early- to mid-phase pinyon-juniper expansion.
- Weed-S-02: Use pesticides/herbicides only outside of the critical disturbance periods and only if other integrated pest management approaches are inadequate or infeasible. Only use chemicals with the lowest toxicity to birds that still provide control in coordination with USDA or APHIS, depending of the targeted pest.
- Weed-S-03: Agency personnel, contractors, and permit holders working in areas with known weed infestations shall clean vehicles of dirt, mud, and visible plant debris before entering a different area to reduce the spread of noxious weeds.
- Weed-S-04: Annual invasive grasses shall be controlled or suppressed using an integrated strategy.
- Weed-G-01: Grazing may be used to target removal of cheatgrass or other vegetation hindering bistate sage grouse objectives where monocultures occur to reduce risk of fire and achieve or move toward desired habitat conditions. Sheep, goats, or cattle may be used as long as the animals are intensely managed and removed when incidental utilization of desirable species reaches 25%.
- Weed-G-02: Require aggressive treatment of new weed or annual grass infestation form any surface-disturbing or other activity that is likely to cause or promote the introduction or infestation to control the potential spread of noxious and invasive annual grass species.

Toiyabe Land and Resource Plan- ***Management Area Direction- Management Area #1-Dog Valley***

- Give priority to protecting deer winter range during all Forest Service activities**.**
- Give priority to rehabilitate key deer winter range damaged by fire if these areas do not recover naturally in a reasonable amount of time and if feasible.
- Wildlife habitat improvement projects will emphasize improvement of deer winter range.

Toiyabe Land and Resource Plan- ***Management Area Direction- Management Area #3-Alpine***

- Wildlife habitat improvement projects will emphasize improvement of deer winter range.
- Manage the 5,488 acre Barber Peak area to protect this critical deer winter range. This

includes allocating all forage to wildlife. Cooperate with the US Fish and Wildlife Service in predator control to minimize effects on wintering big game herds.

- Coordination with federal, state, and local agencies will be provided for the key resources of developed and dispersed recreation, wildlife, aesthetics, and watershed.
- Cooperate with the California Department of Fish and Game in securing and maintaining conservation pools in as many of the small reservoirs along the Sierra Crest as possible.
- Give priority to rehabilitation of key deer winter range damaged by fire if these areas will not recover naturally in a reasonable amount of time.

Toiyabe Land and Resource Plan- ***Management Area Direction- Management Area #4-Walker***

- Coordinate with the California Department of Fish and Game and provide for reintroduction of California bighorn sheep and peregrine falcon in Mono County.
- Update and implement the East Walker and West Walker deer herd plans.
- Wildlife habitat improvement projects will emphasize improvement of deer winter range.
- Maintain the By-Day Creek grazing closure, the stream stabilization structures, and future structures.

Toiyabe Land and Resource Plan- ***Management Area Direction- Management Area #5-Wilderness***

- Maintain and improve habitat in Paiute cutthroat trout habitat in Silver King Valley, Coyote Valley, and Corral Valley. Paiute cutthroat trout will have the highest priority in these areas and will be managed to provide for recovery. All conflicts will be mitigated. Improve fishery habitat to good condition in all other portions of the area.
- Habitat improvement projects for Paiute cutthroat trout will include both structural and nonstructural improvements. Habitat improvement projects will include debris removal, willow planting, streambank stability measures, temporary electric fencing to exclude livestock, and other structural improvements.
- As opportunities arise, coordinate with the California Department of Fish and Game, and provide reintroduction of California bighorn sheep and peregrine falcon in Mono County.

Toiyabe Land and Resource Plan- ***Management Area Direction- Management Area #6-Bridgeport Pinyon Juniper***

- As needed, restrict vehicular access on big game winter ranges
- Wildlife habitat improvement projects will emphasize improvement of deer winter range.
- Manage resources to enhance deer and sage grouse habitat

Sierra Nevada Forest Plan Amendment (2001, 2004)- ***Management Goals and Strategies***

- *Species Viability*: Maintain and restore habitat to support viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian-dependent species. Prevent

new introductions of invasive species. Where invasive species are adversely affecting the viability of native species, work cooperatively with appropriate State and Federal wildlife agencies to reduce impacts to native populations.

- *Plant and Animal Community Diversity*: Maintain and restore the species composition and structural diversity of plant and animal communities in riparian areas, wetlands, and meadows to provide desired habitats and ecological functions.
- Inform forest users, local agencies, special use permittees, groups, and organizations in communities near national forests about noxious weed prevention and management.
- Work cooperatively with California and Nevada State agencies and individual counties (for example, Cooperative Weed Management Areas) to: (1) prevent the introduction and establishment of noxious weed infestations and (2) control existing infestations.
- As part of project planning, conduct a noxious weed risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy to develop mitigation measures for high and moderate risk activities.
- When recommended in project-level noxious weed risk assessments, consider requiring off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy.
- Minimize weed spread by incorporating weed prevention and control measures into ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy.
- Conduct follow-up inspections of ground disturbing activities to ensure adherence to the Regional Noxious Weed Management Strategy.
- Encourage use of certified weed free hay and straw. Cooperate with other agencies and the public in developing a certification program for weed free hay and straw. Phase in the program as certified weed free hay and straw becomes available. This standard and guideline applies to pack and saddle stock used by the public, livestock permittees, outfitter guide permittees, and local, State, and Federal agencies.
- Include weed prevention measures, as necessary, when amending or re-issuing permits (including, but not limited to, livestock grazing, special uses, and pack stock operator permits).
- Include weed prevention measures and weed control treatments in mining plans of operation and reclamation plans. Refer to weed prevention practices in the Regional Noxious Weed Management Strategy. Monitor for weeds, as appropriate, for 2 years after project implementation (assuming no weed introductions have occurred).
- Conduct a risk analysis for weed spread associated with burned area emergency rehabilitation (BAER) treatments. The BAER team is responsible for conducting this analysis. Monitor and treat weed infestations for 3 years after the fire.
- Consult with American Indians to determine priority areas for weed prevention and control where traditional gathering areas are threatened by weed infestations.
- Complete noxious weed inventories, based on regional protocol. Review and update these inventories on an annual basis.

- As outlined in the Regional Noxious Weed Management Strategy, when new, small weed infestations are detected, emphasize eradication of these infestations while providing for the safety of field personnel.
- Routinely monitor noxious weed control projects to determine success and to evaluate the need for follow-up treatments or different control methods. Monitor known weed infestations, as appropriate, to determine changes in weed population density and rate of spread.

Sierra Nevada Forest Plan Amendment (2001, 2004)- *Land Allocations and Desired Conditions*

- *Northern Goshawk and California Spotted Owl Protected Activity Centers (PACs)*- Stands in each PAC have: (1) at least two tree canopy layers; (2) dominant and co-dominant trees with average diameters of at least 24 inches dbh; (3) at least 60 to70 percent canopy cover; (4) some very large snags (greater than 45 inches dbh); and (5) snag and down woody material levels that are higher than average.

Sierra Nevada Forest Plan Amendment (2001, 2004)- *Forest Wide Management Direction*

Wildlife:

- For California spotted owl PACs: Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the activity center during the breeding season (March 1 through August 31), unless surveys confirm that California spotted owls are not nesting.
- For northern goshawk PACs: Maintain a limited operating period (LOP), prohibiting vegetation treatments within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting.
- Detection of a wolverine or Sierra Nevada red fox will be validated by a forest carnivore specialist. When verified sightings occur, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. If necessary, apply a limited operating period from January 1 to June 30 to avoid adverse impacts to potential breeding of forest carnivores. Evaluate activities for a 2-year period for detections not associated with a den site.

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